# IMPLEMENTATION OF CRM AND ITS IMPACT ON BUSINESS PERFORMANCE OF PUBLIC SECTOR OIL COMPANIES

## ABSTRACT

OF THE

## THESIS

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BY

**SANDEEP GARG**

Under the Supervision of

**Dr. Mohammad Khalid Azam**
Reader,
Department of Business Administration
Aligarh Muslim University
Aligarh-202002

**Dr. Mohan Lal Agrawal**
Director
Jaypee Business School
Noida,
U P-201301





DEPARTMENT OF BUSINESS ADMINISTRATION
FACULTY OF MANAGEMENT STUDIES & RESEARCH
ALIGARH MUSLIM UNIVERSITY
ALIGARH (INDIA)


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## 1.1 Introduction

As India got Independence in 1947, a need was felt to build a strong nation, with a government that was attentive to the needs of its people, which would work for their betterment and prosperity. It was expected that a strong government would own undertakings that would create employment, and work towards the eradication of poverty and many other problems. The decades between independence and the 90's witnessed enormous industrialization, where the government set up companies, and built a strong infrastructure. Over the years the public sector has played a central role in enabling our country to accomplish the national objective of self-reliance.

Public sector oil companies came into existence in the late sixties and early seventies, after the first oil crisis. Most of the international companies operating in India, which were primarily Exxon, Mobil, Shell, Indo Burma Petroleum were forced to nationalize. Then began the process of Government control over these companies and this process went till 1999, when government started to initiate the process to decontrol of the oil sector.

The deregulation process started as a result of the expectation of the Customers for better services and amenities. Advent of the multinationals into petro-retailing made this process faster and more dynamic.

The Indian oil industry woke up to this challenge in late nineties, and started working on the concepts of customer care, customer driven marketing, customer admiration and customer loyalty. In short span of time companies were trying to became as customer centric as possible in order to addresss these challenges. Upgradation of services, infrastructure and working methodology were all a result of the market forces, which made them change their overall strategies.

Customer satisfaction (CS) has become an important focus of corporate strategy. Recent research supports the notion that there is a positive relationship between CS and company performance. In the past, many companies trusted their intuitive sense that higher CS would lead to improved company performance. Many companies have started programs which requires measurement of CS and thereby their performance.

Similarly, Customer retention is a critical issue for the survival of any business in today's competitive marketplace It is now increasingly recognized that the aim of customer relationship management (CRM) must be to understand an individual customer's impact on business performance . It is important to determine how best we can understand the needs of the customer in order to efficiently and effectively enhance the level of the current performances, which in turn will have an impact the company's own performance. Studies have indicated that companies that actually achieve high customer satisfaction, enjoy superior economic returns.

Although customer satisfaction is one of the fundamental concepts in marketing theory and practices, the direct link between customer satisfaction and a company's bottom line is still somewhat ambiguous and vague. While most researches focus on how customer satisfaction contributes to the company's performance, the components that impacts and contributes to such performance are largely ignored. Various CRM dimensions that significantly enhance customer loyalty and sales growth are the focus of this research.

Performance is arguably at the core of successful long-term customer relationships. Though the theory advocates that the CRM impacts business performance, yet its dimensions remain elusive in petroleum sectors. The current study is an effort to gain insight into identification of the CRM factors and measuring the impacting factors of CRM, which can significantly impact the business performance in Public Sector oil Companies.

## 1.2 CRM measurement and its impact on business performance

Customer relationship management related activities make a dramatic impact on profitability (Reichheld, 1996). The characterization of CRM by (Bennet, 1996) mirrors the view. According to him, CRM seeks to establish 'long term, committed, trusting and cooperative relationships with customers, characterized by openness, genuine concern for the delivery of high quality services, responsiveness to customer suggestions, fair dealing and the willingness to sacrifice short term advantage for long term gains'. In yet another view of CRM with reference to profitability Fox & Stead, 2001 define CRM to be 'the establishment, development, maintenance and optimization of long term mutually valuable relationships between consumers and the organizations'. Successful customer relationship management focuses on understanding the needs and desires of the customers and is achieved by placing the needs at the heart of the business by integrating them with the organization's strategy, people, technology and business processes. Processes in turn alter the business performance of the organization.

CRM as a success factor requires considerable investments and changes in operational and organizational structures (Homburg et al., 2000; Wilson et al., 2002). The ultimate question is therefore whether customer orientation and the implementation of customer relationships are indeed important for a company's performance. Reichheld and Sasser (1990) presented an early and influential study that showed the tremendous impact that customer retention has on profitability and improves business performance. (Reichheld and Teal, 1996) specifically showed that the longer the customer relationship lasts, the greater its profitability becomes. These authors' conclusions were supported by (Storbacka et al., 1994) and (Yeung and Ennew, 2000).

Research and practical experience have offered a generally positive portrait of the effect of customer relationship management (CRM) on firm performance. It is argued sometimes that a company's strategic commitments may be an overlooked organizational factor that influences the rewards for a company's investments in CRM. The study and practice of customer relationship management (CRM) has experienced explosive growth over the past decade and extensive research provides various insights into the relationship between a company's CRM investments and its performance. (Gupta, Lehmann, and Stuart, 2004) find that customer acquisition and retention expenses have a significant, positive effect on firm value. Other studies report a positive relationship between a company's CRM technology investments and CRM performance (Jayachandran et al., 2005; Mithas, Krishnan, and Fornell, 2005). Other studies envisage CRM as a firm capability and, again, reports its positive effects on both CRM and business performance (Day and Van den Bulte, 2002; Reinartz, Krafft, and Hoyer, 2004). Specifically, when effect of a company's CRM on CRM performance is seen, as measured by customer satisfaction ratings, it is influenced by its prior strategic commitments. Strategic commitments can involve any long-term firm decision, such as the choice to enter specific markets or invest in products, brands, channels, or partnerships or technology.

One of the most significant challenges faced by organizations is that there is a correlation between CRM and business performance. The key question is to find out the parameters on which companies can enhance their efforts on CRM to have a better business performance. Business performance was measured by both objective and subjective measures in the previous researches. The majority of the subjective measures were based on those used by (Narver and Slater, 1990; and Slater and Narver, 1994), including relative return on assets (ROA), relative sales growth, and new product success. Some measures were adopted from (Jaworski and Kohli, 1993), such as overall business performance and overall relative performance. The last two performance criteria, customer retention and word of mouth, were adopted from (Kumar, Subramanian and Yauger, 1998). The subjective measures in this study asked respondents for their assessment of the company's by comparing outlet performance and thereby measuring company performance with that of major competitors in the past few year by rating on a 5 point scale ranging from "poor" to "excellence". (i.e., overall performance of the business in the past year; return on assets relative to your major competitors etc compared to the previous years). The interface between the customers and the company in this research is the Retail outlet and as the proposed research framework suggest that the measurement indicators at the outlets shall be the performance of the outlet measured on various dimensions. From the pre-research studies, some of the dimensions were the quality of fuel, the brand relationship on fuels, Company's image, Company's reliability, Appearance, Trust and other factors were categorized as the performance indicators on which the customers would like to interact with the company.

Under the circumstances, it is proposed that the business performance of the company shall be seen intuitively using the performance indicators present at the outlet, which in turn affect the sales and the business performance of the companies.

## 1.3 Chapter Scheme

The Entire thesis has been divided into seven chapters. The organization of the thesis shall be to facilitate the connectivity of individual chapters with the entire thesis work. A brief of the each chapter is enclosed establishing the flow and continuum from one chapter to another. While Chapter I has focused on the introduction of the concept of Customer Relationship Management and Business Performance. Chapter-II details out the Petroleum Sector brief of India, various companies in the Energy sector and the sample companies under reference. This also chapter details out the aspects of the Indian Oil, Bharat Petroleum and Hindustan Petroleum Corporation Limited, and other PSU units under study. Chapter III describes the current realities on CRM in the petroleum sector, especially in the public sector oil companies. Chapter – IV describes and summaries, on the earlier work done and compiled in reports/articles/dissertations/books and Journals in the area of Customer Relationship Management / Performance other areas related to this research. Chapter – V would primarily, describe and summaries aims and objectives of the research, formalizing research questions and rationale of the study, the structure of the research design, the data collection procedure, the survey instrument, data preparation procedures, its analysis. Chapter – VI relates to analysis and interpretation of the data and the chapter VII titled 'Conclusion and Recommendation' shall draw the conclusion from this study and discuss the recommendations for forging of strong customer relationships in the Petroleum sector. The limitation and further scope of study hasl also be cited in this chapter.

**2.1 Public Sector Oil Companies**

A Public Sector Undertaking is a corporation in the public sector in India, where management control of the company rests with the Government, it can be Central Government or the State Governments. There are about 237 PSUs all over India. Below given is a partial list of Public Sector Oil Undertakings of the Government of India. The information on these companies has been taken from the Company's websites and web portals like Google etc.

| | |
|---|---|
| IOC | : Indian Oil Corporation Limited |
| BPCL | : Bharat Petroleum Corporation Limited |
| HPCL | : Hindustan Petroleum Corporation Limited |
| IBP | : IBP Company Limited |
| NRL | : Numaligarh Refinery Limited |
| KRL | : Kochi Refinery Limited |
| AOD | : Assam Oil Division |
| CPCL | : Chennai Petro Chemical Limited |
| MRPL | : Mangalore Refinery and Petrochemicals Limited |
| ONGC | : Oil and Natural Gas Commission |
| BRPL | : Bongaigaon Refinery and Petrochemical Limited |
| OIL | : Oil India Limited |

### 3.1 CRM Initiatives in Energy Sector

The consumption pattern of petroleum as indicated in the earlier chapter is a clear evidence of the statement that petroleum shall hold a key to India's economic performance. Various Economic reports suggest that with the current rate of growth of economy, India shall be the leading economic power in the world in another 20 years because of the human index. Therefore, the humans or the customers shall hold the future of any company. In the energy sector, our focus and our efforts shall be restricted to the field of petroleum for this research activity.

In petroleum sector, India is also showing early signs of aligning with global trends in petro-retailing with forces working as depicted in fig 3.1. The market is becoming dynamic because of the changing need and expectations of the customers and entry of new players. Moreover, as per the global trend, the market is slowly moving towards increasing revenue from non-fuel related and further intensifying the competition within the companies to garner maximum market share.

Some of the Forces responsible for bringing changes in the business of petro-retailing are:

- Customer churning
- Changing Customers needs and expectations
- New players –and increased competition for market share
- Squeeze of margins and profitability

### 3.2 PSU – The Research Perspective

The petroleum sector has been de-regularized by the Government, yet, the sector operates under some policy framework of the Government of India. The petroleum sector in the last 3-4 years has been exposed to competition and off late the customers have experienced many new avenues to' lure them and change their buying habits. New players have entered into the field of petroleum marketing and have stirred the competition. This has opened up many sectors with in the petro-retailing and many avenues towards the customer benefits have been staged. The Indian Marketing companies have dominated Indian Petro-retailing only and they are at the centre of attention in the vast petroleum market having billions of customers, which have now attracted the focus of these companies.

Some of the questions pertinent to the research focus are:

- What are the factors affecting petro-retailing?
- Are companies aware of these factors?
- How are the companies performance impacted by these factors?
- Do customers recognize these factors, which impact their relationship with the company?

These are some of the broader questions, which set the tone of this research in the context of Public sector oil companies.

**4.0 Litrature Survey**

The term customer relationship management or CRM for brevity is presently among the more popular buzzwords of the Nineties. As a result, the concept means different things to different people. However all agree on one feature of CRM: it reflects "Ongoing relationships between businesses and their customers' in business (Berry, 1995; Sheth and Parvatiyar. 1995). ( Agrawal, 2002) conceptualized CRM as the technological face of the business processes aimed to establish enduring and mutually beneficial relationships to drive customer retention, value and profitability up.

The core theme of all CRM and relationship marketing perspectives is its focus on cooperative and collaborative relationship between the firm and its customers. (Dwyer, Schurr, and Oh, 1987) have characterized such cooperative relationships as being interdependent and long-term orientated rather than being concerned with short-term discrete transactions. The long-term orientation is often emphasized because such relationships will be anchored on mutual gains and co-operation (Ganesan, 1994).

CRM as a success factor requires considerable investments and changes in operational and organizational structures (Homburg et al., 2000; Wilson et al., 2002). The ultimate question is therefore whether customer orientation and the implementation of customer relationships are indeed important for a company's performance. Reichheld and Sasser (1990) presented an early and influential study that showed the tremendous impact that customer retention has on profitability and improves business performance. (Reichheld and Teal, 1996) specifically showed that the longer the customer relationship lasts, the greater its profitability becomes. These authors' conclusions were supported by (Storbacka et al., 1994) and (Yeung and Ennew, 2000).

Research and practical experience have offered a generally positive portrait of the effect of customer relationship management (CRM) on firm performance. It is argued sometimes that a company's strategic commitments may be an overlooked organizational factor that influences the rewards for a company's investments in CRM. The study and practice of customer relationship management (CRM) has experienced explosive growth over the past decade and extensive research provides various insights into the relationship between a company's CRM investments and its performance. (Gupta, Lehmann, and Stuart, 2004) find that customer acquisition and retention expenses have a significant, positive effect on firm value. Other studies report a positive relationship between a company's CRM technology investments and CRM performance (Jayachandran et al., 2005; Mithas, Krishnan, and Fornell, 2005). Other studies envisage CRM as a firm capability and, again, reports its positive effects on both CRM and business performance (Day and Van den Bulte, 2002; Reinartz, Krafft, and Hoyer, 2004). Specifically, when effect of a company's CRM on CRM performance is seen, as measured by customer satisfaction ratings, it is influenced by its prior strategic commitments. Strategic commitments can involve any long-term firm decision, such as the choice to enter specific markets or invest in products, brands, channels, or partnerships or technology.

In addition to theoretical development, a prerequisite for the applied development of CRM is that it should demonstrably enhance firm performance. This is a necessary quality in the evaluation of any firm or marketing activity (Rust et al., 2004). Literature review substantially proves the belief that the implementation of CRM activities leads to firm value. Companies have developed proven CRM practices that enhance firm performance. Using a case study approach, (Ryals, 2005) shows that one of the business units she studied was able to achieve a 270% increase in business unit profits (above target) by implementing several straightforward CRM measures. Using a multi-firm (cross-sectional) database, (Srinivasan and Moorman, 2005) show that companies that invest more in CRM activities and technology have greater customer satisfaction. Using another multi-firm database, (Mithas, Krishnan, and Fornell, 2005) show that the use of CRM applications is associated with increased customer knowledge, which in turn is associated with greater customer satisfaction. Using yet another multi-firm database, (Jayachandran and colleagues, 2005) show that firm performance measured in terms of retention and customer satisfaction is greater for companies that have good relational information processes in place. (Lewis, 2004; Thomas, 2004; and Gustafsson, Johnson, and Roos, 2005) all use data collected within a single firm over time to develop specific CRM applications to increase the company's performance. Gustafsson, Johnson, and Roos (2005) examine customer behavior over time and show that some of the intermediate relationship performance measures that emerge from the business-to-business literature (e.g., satisfaction, calculative commitment) directly and positively influence actual behavior in the form of retention within a business-to-consumer setting. (Payne and Frow, 2005) emphasize that one major element in any CRM system is the measure relate to the value creation process. Thus, good CRM process measures provide the firm with the opportunity to gain deeper insights into how these intermediate process measures link to downstream firm performance.

### 5.1 Research Approach

The research design has the basis in the quantitative model techniques, which was considered appropriate for the purpose of this study - to test and empirically validate a measure of customer relationship with the performance of the public sector oil companies. One problem, which is faced with such research study, is that of reliability, validity and inherent bias, which can seep into the study due to the data interface being the customers. The present study has taken enough precautions that such errors and discrepancies do not set into the system. The basis of this statement is the availability of the evidence based on the extensive research methodology, which is mandatory for the development of proper diagnostic questionnaire and instruments, supplemented ably by the theories cited in the theory and literature. Consistent with the (Yin, 1994) research approaches; the study has the basis of exploratory research technique, which can be tested with the help of a hypothesis. It is also descriptive as it provides description of the contemporary CRM practices, which are being followed. Also, the study is not explanatory, as it does not test the casual relationships.

### 5.2 Statement of Problem

Although the conceptual understanding of a customer relationship management strategy is hardly questioned, the factor which affects this relationship appears to be enormous challenges. Previous studies have focused on components of CRM strategy, such as the link between satisfaction and business performance (Kamakura et al. ,2002), the link between customer loyalty and profitability (Reinartz and Kumar, 2000), customer profitability heterogeneity (Niraj, Gupta, and Narasimhan, 2001), and customer loyalty programs (Verhoef, 2003). However, there is a severe lack of research that takes a broader, strategic focus across firms. There is no clear evidence regarding the factors which characterizes the successful interaction of the customers with the company in the context of petro-retailing, where over a billion customers transact with the companies everyday. Furthermore, the existing academic literature and practical applications of CRM do not provide a clear indication of what specifically constitutes the impacting factors of the CRM processes. Some companies view CRM primarily as investments in technology and software, whereas others treat CRM more expansively and are aggressive in developing sound and productive relationships with customers. Still, the question remained about the way customers interact with the companies. There are no sound studies which identifies the reasons of such interaction of customers with the companies in the context of petroleum marketing.

In Petroleum marketing, some companies have higher market share compare to other companies in the same market. The key question therefore evolve about the " The Extra thing" which these companies are doing to their customers to bring them to their fold. The existing literature is salient on this issue and does not substantiate the efforts of one company over others. The absence of any sound theoretical reasoning has prompted this research and to identify the factors which can impact relationship of the customers with the company and how this impact relationship has reasoned the performance outcome.

Customer relationship management is a business strategy leveraging on the information technology that helps the business attract, retain and grow the most profitable customers. Customer Profitability is viewed as a 'performance outcome' of Customer Relationship Management (from the supplier's point of view). The Research aims to identify the factors impacting CRM in PSU oil companies in petro-retailing. Throughout the research, the Indian perspective of CRM will provide the backdrop of the analysis and will aim at focusing the research in the Indian Petroleum Corporate Sector, which are Indian Oil, Bharat Petroleum and Hindustan Petroleum Corporation Limited, IBP Company Limited, MRPL, BRPL, AOD all Government of India Enterprise under the nomenclature of Public Sector Oil Companies.

### 5.3 Objective of the Research

The comprehensive survey of literature identified the research gap and has defined the problem statement.. This identification is required to set the research ball rolling and for that purpose there is a need to clearly identify and state the objectives of the study. With the same idea the following objectives of the present study have been identified:

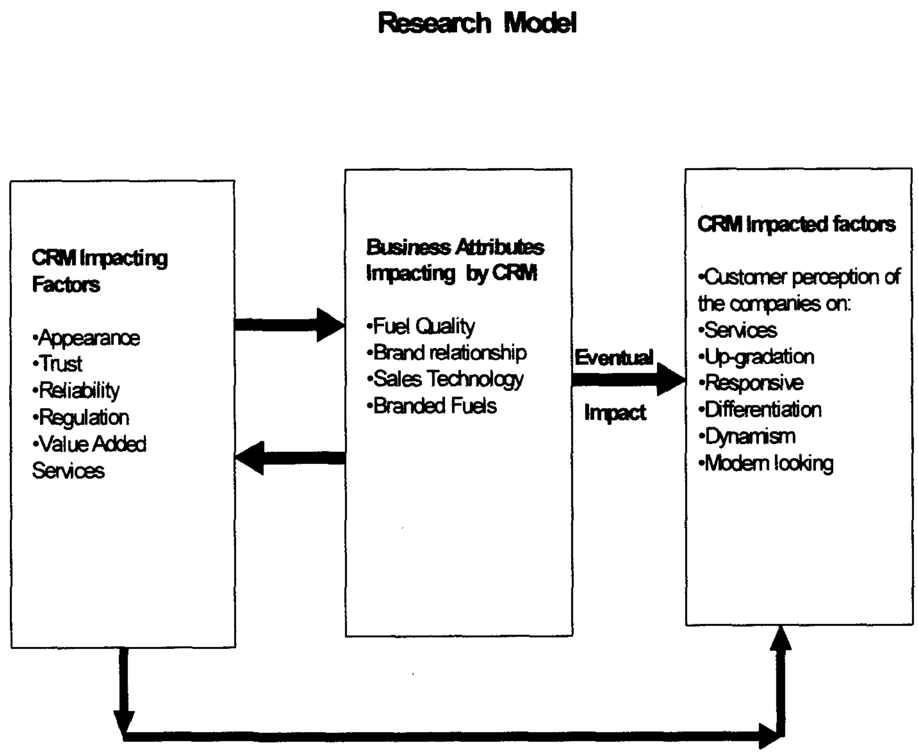
1) To understand the Components of CRM as applied in Public Sector Oil Companies.
2) To Analyze the determinants of CRM in Public Sector Oil Companies.
3) To Study the attributes influencing /impacting CRM in Public Sector Oil company.
4) To identify the Indicators that influences the relationship of the Customers with company.
5) To link if at all there was any Linkages of the CRM factors with the performance outcome of the public sector oil companies.
6) To identify the significant difference among the CRM impacting factors with in the Public Sector Oil companies.

**5.4 Research Model :** The basis of this thesis has drawn past relevance from the study conducted by (Reinartz, Krafft, Wayne, 2004), which highlighted the CRM process, its measurement and impact on performance. It was understood from the study that today organizations are realizing that customers have different economic value to the company, and they are subsequently adapting their customer offerings and communications strategy accordingly. Thus, organizations are, in essence, moving away from product-or brand-centric marketing toward a customer-centric approach.

## 5.5 Modified Research Model

Based on the exploratory research, pilot study and on the basis of the Conceptual model derived from the theories and postulates in the previous research, the CRM model has been modified to suit our research. The research framework proposed in this study tries to examine the CRM determinants and the business attributes impacting CRM.

**Fig 5.2 : CRM Model – Modified Research Framework**



The exploratory research was done extensively to develop a scale, which could measure CRM based on the impacting factors. Figure- 5.2 outlines the framework and the hypothesized relationships.

Based on the model, some of the operational definition has been defined in the context of this research:

***CRM:*** A process by which firms are able to adjust their interactions according to the life cycle stages of their customers and try to fulfill the expectations that arise of the interaction of the firms with their customers. The firms decisions are influenced in various stages by maturing of relationships with their customers. These relationships are identified by the firms by activities that are recognized by the customers in a way that they are impacting and influenced in such a way that it is mutually rewarding for both customers and company. The customers are able to recognize the efforts of the company and respond by rewarding the company and thereby influencing their performance.

***Impacting factors :*** The attributes created by the company to enhance the experience of the customers at each interaction with the company and by which the customers are able to differentiate the services between the various firms.

***COCO:*** A terminology used by the oil companies, by which it is able to determine the type of the physical retail store which are visited by the customers. Company owned, company operated outlets are those which are operated and managed by the company including provision of the own manpower.

***Dealer operated:*** The only diffrentiater with the COCO is that the facilities are managed and operated by the dealer, an intermediatory, who signs an agreement to provide the similar working ambience as that of a COCO.

## 5.6 Hypothesis of the Study

For achieving, the objectives of the study hypothesis were developed based on the identification of independent and dependent variables related with the study. The oil Companies which are refining and marketing organization provides services to their customers and are independent variables and customer satisfaction are dependent variables. The role played by the retail outlets in distribution of petroleum products and the interface between company and customers is dominant so their services have got prominent position as compared to the organization as such. The following hypotheses have been developed for study and testing. The hypotheses as mentioned below are reflective of this premise and are tested in detail in the subsequent chapters.

**The Hypothesis are:**

**$H_{-01}$:** ***There is no significant difference among the companies on CRM Factors.***

**H-02:** ***There is no significant difference among the Category of outlets on CRM Impacting factors.***

**H-03:** ***There is no significant difference between the companies on CRM impacting Factors.***

**H-04:** ***CRM impacting Factors do not contribute to Performance.***

**H-05:** ***There is no significant difference among the CRM impacting factors that contributes to performance***

The hypothesis were formed on the basis of the satisfaction with the services as perceived by the customer at the point of the interaction of the customers with the company, which in this case is the retail outlet, where the interface of the customers are taking place with the company. Other hypothesis also have base on the satisfaction of the customers with different Company under study, satisfaction level of the customers with those services and the performance of the companies. The research hypotheses were formulated with respect to the specific relationships in the conceptual framework.

### 5.7 Questionnaire Development and Pilot Testing

There was no ready made instrument for the analysis and evaluation of CRM in either public sector or private sector. Moreover, there is no study in manufacturing or service sector so a self designed questionnaire was the only option left for this purpose.

The development of the questionnaire was a multi stage process. Litreature studies were carried out to support development of the questioanire. A pilot study / survey was conducted to refine the questionnaire. The reliability and validity of the statements were checked. For further confirmation and development of confidence in the instrument, the reliability was tested on the actual data collected from the sample and it was found in line with the pilot study.

The design of the questionnaire has been done on the following grounds and the questionnaire contained four parts:

1. The Customer Profile
2. The ranked factor important in the Fuel buying process
3. The questions to measure the factors which customers perceive as the CRM impacting factors.
4. The demographic profile

The demographic profile of the customer has been taken to identify the groups of the respondents.

## 5.8 Sampling Plan

In order to choose sampling units towards empirical study of the Customer Relationship management and its impact on business performance, several scenarios and frameworks have been suggested in the literature. The work definition of the sampling plans is as follows:

***5.8.1 Sample Size:*** (Malhotra et al., 1996) defined sample size as the number of elements to be included in the study. The type of study, which deals with the identification of the customer interactions at the retail outlets, a sample size of around 500 was considered sufficient for this research and also qualifies the norms as stipulated by (Malhotra et al., 1996).

***5.8.2 Sampling Frame:*** (Malhotra et al., 1996) defined a sampling frame to be a representation of the elements of the target population. The sampling frames in this case are the list of the customers who have interacted with the company.

***5.8.3 Sampling Unit Perspective:*** (Malhotra et al., 1996) defined that the target population is the collection of elements or objects that possess the information sought by the researcher and about which inference can be made. The element here are the customers who visits the outlets of these PSU companies and forms the part of the target population and the list prepared for collection of the data from the sampling frame is the sampling unit. In the research, the sampling frame, sampling unit and the elements are the customers.

***5.8.4 Sampling Procedure:*** The sampled data on the CRM efforts has been collected from a representative cross section of respondents who were approached without any prejudice or pre qualification.

***5.8.5 Sampling Method:*** A stratified random sampling method was used in this study. (Malhotra et al., 1996) categories the systematic sampling method as a probability sampling technique. In this study, a total of 100 names were selected from the list for each retail outlet. From these names, the first 15 were selected. Any shortfall on the sample, wherein the respondent did not come, the next name in the list was selected.

**5.9 Sources of Data**

Data has been taken from company's internal records, from Government of India records and also from sources, which from petroleum company point of view were authenticate and relevant.

**5.10 Data Collection**

***5.10.1 Source of data:*** The data has been collected from individual customers who are primarily using fuels for usage of self-consumption in their automobiles and vehicles and are visiting company's retail outlets. The data collection in the scope of the study has been done in the form of Primary data taken from the two category of outlets i.e COCO ( Company owned and company operated) and dealer owned. The sample of each company has been taken as 15 outlets including 3 company owned and company operated.

***5.10.2 Primary Data:*** The Primary data has been collected directly from the customers using the structured questionnaire to understand their profile, satisfaction, serviceability and growth for the company

***5.10.3 Data Points:*** To collect the data, a questionnaire was designed, which was subjected to the test of reliability and validity and each set of questions were chosen for clarity of the answer sought in the question. The Values of the data were validated using the SPSS/Minitab package.

### 5.11 Data Collection Procedure

This study also employed the survey method, which makes use of a questionnaire. There are many types of survey methods but in this case, a self-administered questionnaire was selected as the means to data collection.

### 5.12 Scope of the Study

This study suffers from the usual spectrum of limitation as found in many doctoral research efforts. However, efforts are on to minimize their impact and provide as representative outcome as possible. It is important to define the boundary conditions under which this work has been conceived.

1. To arrive at definite conclusion from this research, the firm chosen were the Public Sector oil Companies which are IOC, BPCL,HPCL,IBP, NRL,CRL,AOD,CPCL, MRPL,ONGC, BRPL,KRL & OIL.

2. The scope of the study has been limited to the identification of the impacting factors which determines the relationship of the customers with the company.

3. The oil companies have various business portfolios, which has been described in the previous chapters. However, this study is limited to the identification of impacting factors in the retail business portfolio of the PSU companies.

4. The impacting factors have been measured at both the Company owned Company operated /Dealer owned outlets and the sample have been drawn from both the category of outlets to avoid biasness.

5. The responses from the respondents have been collected by the researcher during the period of six months.

6. The respondents of the companies have been restricted to the NCR Region.

7. the research study is expected to contribute to the newly developing field of CRM. The issue is critical in the context of the emerging deregulation and competitive scenario of the India corporate sector.

**5.13 Limitation of the study:**

1. All the above companies were included in the study. However, from the purpose of collection of the primary data, the limitations have been observed. There is a large variation in the values of the volumes handled by the companies ranging from 45 TMT to less than 1 TMT. Also among the companies, there are companies which have the market share less than 1%. Many of the PSU companies do not have all India presence and their foray into retailing has been just initiated. All the factors combined with the private players, only accounts for less than 5% of the market share and therefore keeping these viewpoints companies have been omitted from the scope of the study.

2. The sampling of the data was done using systematic sampling. However, since the sample population is very large and the sample size for the collection of the data is small, the sample may suffer from biasness despite care being taken.

3. No previous study has been conducted to measure impacting factors in the Pre-CRM implementation stage of the company.

## 6 .0 Tests of measure and correlation Analysis and Empirical results

This part explains the method, purpose and scope of data collected for Measuring CRM Attributes in Public Sector Oil Companies. The data collected has been tested for reliability and validity from the research objective point of view. The chapter details the descriptive statistics, correlation analysis and how various Factors related to CRM are related to each other in the petroleum sector and how are they impacting the business performance. Some of the techniques such as t-test, Duncans means test, regression analysis, Coorelation analysis etc has been used to test the sample.

## 7.0 Summary of Findings

The Analysis of the data and some of the hypothesis takan at the beginning of the research are listed once again:

**Table 7.1 Details of Hypotheis**

| | | |
|---|---|---|
| **$H_{01}$** | **There is no difference between the Three companies.** | **Rejected** |
| **$H_{02}$** | **There in no difference among category of on CRM impacting factors** | **Rejected** |
| $H_{021}$ | There in no difference among category of outlets on Relationship dimension | Rejected |
| $H_{022}$ | There in no difference among category of outlets on Appearance Dimension. | Rejected |
| $H_{023}$ | There in no difference among category of outlets on Regulation dimension. | Rejected |
| $H_{024}$ | There in no difference among category of outlets onTrust dimension. | Rejected |
| $H_{025}$ | There in no difference among category of outlets on Value Added Service Dimension. | Rejected |

| | | |
|---|---|---|
| **$H_{03}$** | **There is no difference between the companies on CRM impacting Factors.** | **Rejected** |
| $H_{031}$ | There is no difference between the companies on the Reliability dimension | Rejected |
| $H_{032}$ | There is no difference between the companies on the Appearance dimension. | Rejected |
| $H_{033}$ | There is no difference between the companies on the Regulation dimension. | Rejected |
| $H_{034}$ | There is no difference between the companies on the Trust dimension. | Rejected |
| $H_{035}$ | There is no difference between the companies on the VAS dimension. | Rejected |
| **$H_{04}$** | **The CRM Impacting factors do not contribute to Performance** | **Rejected** |
| **$H_{05}$** | **There is no significant difference among the CRM impacting factors that contributes to performance.** | **Rejected** |

The Main observations can be concluded as follows:

1. The research has clearly identified the factors which were identified by the customers which are perceived to be the starting point of initiating the relationship with the company. Oil companies must regard these factors , while planning the retail outlet sites, look for convenience of the customers to facilitiates the services at the outlets and also the quality of fuels. It was evident from the research that the factors which tends customers to buy from a particular outlet is because of the following factors:

   *Proximity of the outlet :* Customers will visit the outlet only if the location is close to the house. Some of the reasons cited for this cause were that customer prefered buying fuels either during the early day/evening when they were near to their house. This would facilitate the un-necessary waste of fuel as they were concerned about it. Moreover, many of the customers felt that the they were identified by the dealer, however their recognition with the dealer was a low priority item in their ranking.

*Convenince to the travel plan of the customer:* It the outlet falls into the travel plan of the customers, that is the reason for visiting the outlet. Companies have to promote schemes which were location specific and therefore, would attract the customers to the local area outlets. Moreover, this insight shall help company to ensure that customers are prompted to visit outlets enroute to their travel plan.

*Quantity of fuel:* Customers felt that one of the key criteria to visit any petrol pump was the qualiy of fuel and therefore, one of the critical implications for the company is the availability of the god quality fuel at the stations.

*Ambience of the station :* The key attractions for the customer in the competitive scenario is the visibility of the outlets and how good is the ambience of the station. This ambience includes the equipments, upkeep, maintenance of the allied equipments, staff presence and overall companies image.

*Convenience of payment:* With the change in the economic incomes of the customers, the way customers buy fuels and other services from the petrol stations have also changed. The learning therefore, company can draw from the research is that the options must be available to the customer on paying for the services, or else they feel constrained for visting the outlets.

*Company's image in that market:* Customers evaluate each company, based on their experience and interactions with the company. Also they evaluate the responsiveness of the company in the present competitive market and then make their buying decisions. Therefore, this research entails companies to undertake image building exercise as this would influence their relationship with the company.

*Availability of Value added services (Servicing, Stores etc):* Other than the process of supplying fuels to the customers, customers see their relationship also based on the availability of other services , which includes non-fuel services, such as ATMs, grocery stores etc.

2. The Customers sees that the factors impacting their relationship with the company are depending on the following five factors:
    a. Reliability
    b. Appearance
    c. Regulation
    d. Trust
    e. Value added Services

    ***Reliability:***The factor of reliability is reflected in the form of the outlet dependability, which is reflected from the modern equipment, their trusted employees, error free sales transactions, ability to answer to customer enquiries, providing accurate information in the advertisement and avaialibility of the services such as ATMs, convenience stores at the outlet.

    ***Appearance:*** Appearance is measured by the customers in the form of the buying experience they enjoy at the outlets through ambience, employees courtsies and also the allied services offered by the companies. Customers also desire that the services offered by the companies should be available at the dispensing island as that is the moment ehy interact with the company. Simultaneously they appreciate thouse outlets more , where the facility for parking also exists.

***Regulations:*** Customers understands the regulations in terms of the better quality of fuels offered by the companies and they perceive it to be mandatory. Slo the outlet layout and answering customers querries are perceived to regulated by the companies.

***Trust:*** While refueling customers perceive that the dispensor with a digital display gives more accurate fuel and therefore the outlet is dependable. Operating hours and consisitent delivery of quality fuel is a matter of trust between companies and customers. Also they feel more comforted when the ingress and outgress from the outlet is comfortable and the layout is properly accessible.

***Value Added Services:*** Acceptance of the credit cards and the convenience of payment has been considered as once of the major value added service offered to the customers and customers view to be the safest way of transacting with the company. Acceptance of any credit card by the company was seen as a major advantage of payment as customers preferred to pay using these conveniences. Other than these the promotiuonal and good services in terms of the eatables, long hours and overall reliability was considered useful.

The implications for the oil companies are to increase the value components for these factors at the retail outlet and ensure compliance even at the dealer owned stations.

### 7.2 Managerial Implications

The results of this research have several important implications for managers. The research provides a systematic outline of the different CRM activities that occur at retail outlets of oil companies and the various components of the relationships can be used by the managers to enhance the customer interactions. Thus, a company could use the approach to identify key activities that must be implemented to be successful, and an evaluation of the activities can provide a means for comparing their level of implementation with that of competitors .

### 7.3 Limitations and Further Research

Although, this research provided some meaningful findings which are relevant in the context of the PSU oil companies, there are some limitations that need to be discussed. First, a key objective of our study was to conceptualize and operationalize a measure of CRM impacting factors on the performance on business. Though, an extensive search through academic literature was done to identify the critical impacting factors, but each industry has to be looked from their individual business orientation. Identification process of these factors provides only a framework of looking at the process of CRM.

Second, the business of the oil is very dynamic and it should be noted that the companies are also operating in a dynamic environment. The current research is to be seen as an attempt to see the current realities and the customers perceptions as the balancesheet of the efforts made by the companies. The factors identified provides only a glimpse of the relationship factors which company can look forward for controlling in the future times to come. There is a strong possibility of many exogenous variable which might be affecting the performance of the companies, as the companies are operating under a controlled mechnism and only dynamic factors have been accounted in the study. Therefore, there is further scope of research left in the study to examine the CRM variables and their impact.

# IMPLEMENTATION OF CRM AND ITS IMPACT ON BUSINESS PERFORMANCE OF PUBLIC SECTOR OIL COMPANIES

## THESIS

SUBMITTED FOR THE AWARD OF THE DEGREE OF

## Ph. D. (BUSINESS ADMINISTRATION)

BY


SANDEEP GARG


Under the Supervision of


**Dr. Mohammad Khalid Azam**
Reader,
Department of Business Administration
Aligarh Muslim University
Aligarh-202002

**Dr. Mohan Lal Agrawal**
Director
Jaypee Business School
Noida,
U P-201301




DEPARTMENT OF BUSINESS ADMINISTRATION
FACULTY OF MANAGEMENT STUDIES & RESEARCH
ALIGARH MUSLIM UNIVERSITY
ALIGARH (INDIA)

2008

Fed in Computer

To

My Creator

My Inspiration

My father

Late Shri M B Garg

## DECLERATION

I do hereby declare that the thesis titled '**IMPLEMENTATION OF CRM AND ITS IMPACT ON BUSINESS PERFORMANCE OF PUBLIC SECTOR OIL COMPANIES'**, submitted to the faculty of Management studies and research, Aligarh Muslim University for the degree of **Ph.D. (Business Administration)** is a record of original work done by me under the supervision and guidance of **PROF M KHALID AZAM, Reader**, Faculty of Management Studies and Research, Aligarh Muslim University (Internal Supervisor) and **DR MOHAN LAL AGRAWAL, Director,** Jaypee Business School, Noida, UP (External Supervisor) and it has not, previously formed the basis for the award of any degree, diploma, associateship, fellowship or other similar title to any candidate of any university

**Place: Noida**

**Date:** 19th JULY, 2008

**Signature of the candidate**

**SANDEEP GARG**

**Dr. Mohammad Khalid Azam**
Reader

Department of Business Administration
Phone: 0571-2702044 (O)
Exchange: 0571-270920 Ext. 3582
Email:mkhalidazam@rediffmail.com

# CERTIFICATE

This is to certify that the thesis titled **'IMPLEMENTATION OF CRM AND ITS IMPACT ON BUSINESS PERFORMANCE OF PUBLIC SECTOR OIL COMPANIES'**, submitted to the faculty of Management Studies and Research, Aligarh Muslim University in partial fulfillment of the requirements for the award of the degree of **Ph.D. (Business Administration)** is a record of original work done by **Mr. SANDEEP GARG,** during the period of his study in the Department of Business Administration, Faculty of Management Studies and Research, Aligarh Muslim University, under my supervision and guidance. This thesis has not formed the basis for the award of any degree, diploma, associateship, fellowship or other similar title to any candidate of any university.

Place: Aligarh
Date: 19th July 2008

**Dr. Mohammad Khalid Azam**
**Internal Supervisor**

# CERTIFICATE

This is to certify that the thesis titled **'IMPLEMENTATION OF CRM AND ITS IMPACT ON BUSINESS PERFORMANCE OF PUBLIC SECTOR OIL COMPANIES'**, submitted to the faculty of Management Studies and Research, Aligarh Muslim University in partial fulfillment of the requirements for the award of the degree of **Ph.D. (Business Administration)** is a record of original work done by **Mr. SANDEEP GARG,** during the period of his study in the department of Business Administration, Faculty of Management Studies and Research, Aligarh Muslim University, under my supervision and guidance. This thesis has not formed the basis for the award of any degree, diploma, associateship, fellowship or other similar title to any candidate of any university.

M Agrawal

**Place: NOIDA**
**Date:** 19th JULY, 2008

**DR MOHAN LAL AGRAWAL**
**External Supervisor**

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## PREFACE

As India got Independence in 1947, a need was felt to build a strong nation, with a government that was attentive to the needs of its people, which would work for their betterment and prosperity. It was expected that a strong government would own undertakings that would create employment, and work towards the eradication of poverty and many other problems. The decades between independence and the 90's witnessed enormous industrialization, where the government set up companies, and built a strong infrastructure. Over the years the public sector has played a central role in enabling our country to accomplish the national objective of self-reliance.

Public sector oil companies came into existence in the late sixties and early seventies, after the first oil crisis. Most of the international companies operating in India, which were primarily Exxon, Mobil, Shell, Indo Burma Petroleum were forced to nationalize. Then began the process of Government control over these companies and this process went till 1999, when government started to initiate the process to decontrol of the oil sector.

The deregulation process started as a result of the expectation of the Customers for better services and amenities. Advent of the multinationals into petro-retailing made this process faster and more dynamic.

The Indian oil industry woke up to this challenge in late nineties, and started working on the concepts of customer care, customer driven marketing, customer admiration and customer loyalty. In short span of time companies were trying to became as customer centric as possible in order to addresss these challenges. Upgradation of services, infrastructure and working methodology were all a result of the market forces, which made them change their overall strategies.

Customer satisfaction (CS) has become an important focus of corporate strategy. Recent research supports the notion that there is a positive relationship between CS and performance.. In the past, many companies trusted their intuitive sense that higher CS would lead to improved company performance. Many companies have started programs which requires measurement of CS and thereby their performance.

Similarly, Customer retention is a critical issue for the survival of any business in today's competitive marketplace It is now increasingly recognized that the aim of customer relationship management (CRM) must be to understand an individual customer's impact on business performance . It is important to determine how best we can understand the needs of the customer in order to efficiently and effectively enhance the level of the current performances, which in turn will have an impact the company's own performance. Studies have indicated that companies that actually achieve high customer satisfaction, enjoy superior economic returns.

Although customer satisfaction is one of the fundamental concepts in marketing theory and practices, the direct link between customer satisfaction and a company's bottom line is still somewhat ambiguous and vague. While most researches focus on how customer satisfaction contributes to the company's performance, the components that impacts and contributes to such performance are largely ignored. Various CRM dimensions that significantly enhance customer loyalty and sales growth are the focus of this research.

Performance is arguably at the core of successful long-term customer relationships. Though the theory advocates that the CRM impacts business performance, yet its dimensions remain elusive in petroleum sectors. The current study is an effort to gain insight into identification of the CRM factors and measuring the impacting factors of CRM, which can significantly impact the business performance in Public Sector oil Companies.

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## List of Abbreviations used

| | |
|---|---|
| AOD | : Assam Oil Division |
| APM | : Administrative Price Mechanism |
| ATF | : Aviation Turbine Fluid |
| BCM | : Billion cubic meters |
| BPCL | : Bharat Petroleum Corporation Limited |
| BRPL | : Bongaigaon refinery and petrochemical Limited |
| BTU | : British Thermal Units |
| CNG | : Compressed Natural Gas |
| CPCL | : Chennai petro chemical Limited |
| CRL | : Cochin Refinery Limited |
| CRM | : Customer Relationship Management |
| ESSAR | : Essar Petroleum Limited |
| ExxonMobil | : Exxon Mobil Oil Company |
| FO | : Furnace Oil |
| GAIL | : Gas authority of India Limited |
| GDP | : Gross Domestic Product |
| HPCL | :Hindustan Petroleum Corporation Limited |
| HSD | : High Speed Diesel ( Diesel) |
| IOC | : Indian Oil Corporation Limited |
| KRL | : Kochi Refinery Limited |
| KWH | : Kilo Watt Hour |
| LDO | : Light diesel Oil |
| LPG | : Liquid Petroleum Gas |
| LSHS | : Low Sulphur Heavy Stock |
| MMT | : Million Metric Tonnes |
| MMTPA | : Million Metric Tonnes Per Annum |
| Mn | : Million tones |
| MOP&NG | : Ministry of Petroleum and Natural Gas |

| | |
|---|---|
| MRPL | : Mangalore refinery and Petrochemicals Limited |
| MS | : Motor Spirit ( Petrol) |
| MTO | : Mineral Turpentine Oil |
| Mtoe | : Million Tonnes of Oil Equivalent |
| NRL | : Numaligarh Refinery Limited |
| ONGC | : Oil and Natural Gas Commission |
| PSU Company | : Public Sector Oil Company |
| RBF | : Refinery Base Feedstock |
| Reliance | : Reliance Petroleum Limited |
| SHELL | : Shell India Limited |
| SKO | : Superior Kerosene Oil |
| TPCES | : Total Primary Commercial Energy Supply |
| USD | : United States Dollar |

# CHAPTER ONE: INTRODUCTION

**Chapter Outline**

This chapter shall primarily focus on the introduction of the concept of Customer Relationship Management and Business Performance. The Entire work of the research is based on the premise that that Customer Relationships between firms and its customers has a direct bearing on the performance of the business. This Chapter shall primarily focus on making some synergy between the two concepts and try to highlight the linkage between CRM and Business Performance.

**1.1 CRM as a New Marketing Paradigm**
**1.2 CRM and Relationship Marketing**
**1.3 CRM Definitions & Features**
**1.4 CRM History**
**1.5 Why CRM?**
**1.6 CRM and Business Performance**
**1.7 CRM Research Directions**
**1.8 Chapter Scheme**

## Chapter One : Introduction

### 1.1 CRM as a New Marketing Paradigm

The term customer relationship management or CRM for brevity is presently among the more popular buzzwords of the Nineties. As a result, the concept means different things to different people. However, all agree on one feature of CRM: it reflects "Ongoing relationships between businesses and their customers' in business (Berry, 1995; Sheth and Parvatiyar. 1995). ( Agrawal, 2002) conceptualized CRM as the technological face of the business processes aimed to establish enduring and mutually beneficial relationships to drive customer retention, value and profitability up.

Indeed, the building of strong customer relationships has been suggested as a means for gaining competitive advantage in marketing (McKenna, 1991; Reichheld, 1993; Vavra 1992). In its core, CRM argues that customers vary in terms of profitability and any two customers representing same demographic segment may incur different cost and generate different revenue over time. Moreover, it is recognized that not all customers generate revenue streams and therefore efforts should be to upgrade low, medium profit customers into profitable customers. CRM recognizes this fact of marketing life and recommends that the firm should actively encourage relationships with profitable customers only and attempt to terminate or outsource relationships with unprofitable customers (Reichheld, 1996).

The customer relationship management touches multiple areas of marketing and strategic decisions. Convergence of several other paradigms of marketing especially around the theme of cooperation and collaboration between marketers and customers has only added to its prominence in the corporate world. According to Parvatiyar and Sheth (2000), CRM refers to 'a conceptually broad phenomenon of business activity where cooperation and collaboration with customers become the dominant paradigm of marketing practice and research'.

As building profitable customer relationships gets to be fundamental purpose of every enterprise, it requires a holistic strategy to make it successful. CRM is fast emerging a predominant perspective of marketing. It is argued as if CRM is the strategic solution to modern business problems and can provide readymade answers. However, at its core, CRM involves redefining the value offer to the customers, designing and integrating business processes around them, and implementing and monitoring programmes for the sum such that it creates a sustainable customer advantage (Agrawal, 2002). If implemented successfully CRM offers immeasurable benefits to the organization in terms of improved sales, market share profitability, customer satisfaction and reduced customer turnover, service cost and time. Various terminologies such as relationship marketing, relationship management, customer management, CRM etc. have been used to describe the process or activities aimed at building long term profitable relationships with customers. Levitt (1983) explained that 'the relationship actually intensifies subsequent to the sale and becomes the critical factor in the buyer's choice of the seller next time around' and the 'sale merely consummates the courtship'. However, it shall be known subsequently how well defined the relationship has been, which in turn depends on the cost of sales and the profitability of the goods sold.

The further rise of mutual beneficial relationship through relational exchange has been at the core of all CRM studies. Gronroos (1994) defined relationship marketing as 'a set of activities directed towards establishing, developing and enhancing customer relationships for mutual exchange and fulfillment of promises'. (Berry, 1983; Christopher et. al. 1991; Payne, 1995; Sheth and Parvatiyar, 1995) also echoed the same and defined that mutual exchange and fulfillment of promises trust and commitment, communication effectiveness and personalization are the integral elements in managing relationships

(Gronroos, 1994; Gummesson, 1999; Morgan and Hunt, 1994; Sharma and Patterson, 1999; jain and jain, 2001). (Gruen et al, 2000) reported that interpersonal relationships between buyers and suppliers serve as switching barriers and prevent customer defection.

### 1.2 CRM and Relationship Marketing

In the marketing literature, the terms customer relationship management and relationship marketing are used interchangeably and reflect a variety of themes and perspectives (Nevin, 1995). While themes offer a narrow functional marketing perspective, on the other hand it offers a perspective that is broad and somewhat paradigmatic in approach and orientation. One perspective of customer relationship management is database marketing emphasizing on the promotional aspects of marketing linked to database efforts (Bickert, 1992), yet, another, though relevant, viewpoint is to consider CRM as customer retention in which a variety of after marketing tactics is used for customer bonding or staying in touch after the sale is made (Vavra, 1992). However, in the continuum, one of the popular approaches with recent application of information technology is to focus on individual or one-to-one relationship with customers that integrate data base knowledge with the long-term customer retention and growth Strategies ( Peppers and Rogers, 1993). Relationship marketing is "an integrated effort to identify, maintain, and build up a network with individual consumers and to continuously strengthen the network for the mutual benefit of both sides, through interactive, individualized and value-added contacts over a long period of time"(Shani and Chalasani, 1992). (Jackson, 1985) applies the individual account concept in industrial markets to suggest CRM to mean, "Marketing oriented toward strong, lasting relationships with individual accounts. In other business contexts, (Paul, 1988, O'Neal, 1989, Doyle and Roth, 1992) have proposed similar views of customer relationship management.

(McKenna, 1991) professes a more strategic view by putting the customer first and shifting the role of marketing from manipulating the customer (telling and selling) to genuine customer involvement (communicating and sharing the knowledge). (Berry, 1995), in somewhat broader terms, also has a strategic viewpoint about CRM. He stresses that attracting new customers should be viewed only as an intermediate step in the marketing process. Developing closer relationship with these customers and turning them into loyal ones are equally important aspects of marketing. Thus, he proposed relationship marketing as "attracting, maintaining, and -in multi-service organizations - enhancing customer relationships".

(Berry, 1983) formally introduced the term customer relationship management to the literature but several ideas of relationship marketing had already emerged much earlier. (McGarry, 1953) included six activities in the formal list of marketing functions-contractual function, propaganda function, merchandising function, physical distribution function, pricing function and termination function that are symptomatic of the CRM. Arndt (John, 1979) provided the next impetus to CRM who noted the tendency of companies engaged in business-to-business marketing in developing long-Lasting relationships with their key customers and their key suppliers rather than focusing on discrete exchange and termed this phenomenon as "domesticated markets". The final push to CRM was given by none other than the modern proponents of profitable customer retention theory- (Reichheld and Sasser, 1990) who carried out a study on customer retention and corporate profitability and clearly stated that the role of customers is essential for corporate performance and that when relationships with customers endure, profits rise. In addition, (Sheth and Parvatiyar, 1995) showed that the cost of retaining current clients is frequently much lower than cost of acquiring new ones. In the same way, (Reichheld, 1993) concluded that economic benefits of high loyalty are important, and in many industries they explain the differences among companies.

In recent years, customer relationship management is being enlarged to include an integrated perspective on marketing, sales, customer service, channel management, logistics and technology for engaging in customer satisfaction. Practitioners are calling it customer relationship management (CRM) and are interested in all aspects of interactions with customers to maintain a long-term profitable relationship with them. They are very keen on learning about the programs, strategies, processes and technologies that would be applicable for effective customer relationship management in the new millennium.

### 1.3 CRM Definitions & Features

The core theme of all CRM and relationship marketing perspectives is its focus on cooperative and collaborative relationship between the firm and its customers. (Dwyer, Schurr, and Oh, 1987) have characterized such cooperative relationships as being interdependent and long-term orientated rather than being concerned with short-term discrete transactions. The long-term orientation is often emphasized because such relationships will be anchored on mutual gains and co-operation (Ganesan, 1994).

Another important facet of CRM is "customer selectivity". As several research studies have shown not all customers are equally profitable for an individual company (Storbacka, 2000). The company therefore must be selective in tailoring its program and marketing efforts by segmenting and selecting appropriate customers for individual marketing programs. CRM therefore is a comprehensive strategy and process of acquiring, retaining and partnering with selective customers to create superior value of the company and the Customer. The purpose of CRM is to improve marketing productivity. Marketing productivity is achieved by increasing marketing efficiency and by enhancing marketing effectiveness (Sheth and Sisodia, 1995). In CRM, marketing efficiency is achieved because cooperative and collaborative processes help in reducing transaction costs and overall development costs for the company, two important processes of CRM include proactive customer business development and building partnering relationship with most important customers. These lead to superior mutual value creation. Various perspective of Defining CRM has been given in the literature.

A cursory review of the literature reveals that CRM has been defined by marketing practitioners and scholars alike. While some of these conceptualizations are similar, there is definitely a lack of consensus as to the most appropriate way in which this emerging phenomenon should be defined. In an attempt to develop a conceptualization that captures the true meaning of CRM, an extensive review of the extant literature was conducted. Aside from published and working academic papers, the review also included vast amounts of literature from the popular domains, which included articles posted on key CRM web portals such as CRM Community; CRM Guru, CRM Xchange, Destination CRM, European Centre for Customer Strategies, as well as definitions offered by the top CRM software manufacturers and providers (e.g., Siebel, Oracle, SAS). Many definitions defined in the literature though defined separately, yet centered on some core themes.

CRM is an art/science to gather and use information about customers to build customer loyalty and increase customer value. The process can be extended from concept selling by a salesperson to a continual process involving every person in the company. With high customer service expectations, it is practically impossible to consider these process issues without addressing technology; however, it is important to remember that customer relationships - human relationships are the ultimate driving force in any information mechanism. It fine-tunes the composition of technology tools, business process, and people issues. The balance of these three components may change from time to time as the company's – and its customers' – needs change too. It works in the domain of business models, process methodologies and interactive technologies to achieve and sustain high levels of retention and referrals within identified categories of valuable and growable customers. CRM helps in developing and implementing business strategies and supporting technologies that close the gaps between an organization's current and potential performance in customer acquisition, growth, and retention. From the organizational perspective, CRM improves return on assets, and the assets are the existing customer and potential customers. The deepening of the knowledge (not data) of potential and existing customers over time and then using that knowledge gained to customize the business strategies to meet those customers' individual needs is the ultimate objective of CRM. As a management approach, CRM puts the customer at the core of a company's processes and practices and uses technology to address these issues. It is important to stress this point simply because a large percentage of the market's perception is that CRM is simply a technological solution that will solve all your needs, but indeed CRM is all about changing the entire mindset to become customer orientated. In the long run, CRM leverages cutting-edge technology, integrated strategic planning processes, personal marketing techniques and organizational development tools to build internal and external relationships that increase profit margins and productivity within a company. At its core, CRM has everything to do with customer satisfaction and nothing to do with technology, except insofar as technology furthers that end. It starts with the premise of meeting customer expectations and then figure out how technology can help to meet those objectives. Technology is a means not an end. The stated objective and benefit of good CRM is to increase the customer base by acquiring new customers and effectively serving the needs of the existing customers. Its focus is on managing and optimizing the entire customer life cycle.

As part of the Information Mechanism, CRM refers to a business strategy to select and manage customers to optimize long-term value. CRM requires a customer-centric business philosophy and culture to support effective marketing, sales, and service processes. CRM applications can enable effective Customer Relationship Management, if an enterprise has the right leadership, strategy and culture. When organizations implements customer-centric business strategies, it involves redesigning of functional activities, which demands re-engineering of work processes, which is supported, not driven by CRM technology. This reinforces the understanding that CRM is a "chain reaction" triggered by new strategic initiatives rather than something that can initiate at the work process, or at technology level. In terms of technology, CRM refers to methodologies, software, and usually Internet capabilities that help an enterprise manage customer relationships in an organized way. For example, an enterprise might build a database about its customers that describes relationships in sufficient detail. Therefore, management, salespeople, people providing service, and perhaps the customer directly could access information, match customer needs with product plans and offerings, remind customers of service requirements, and know what other products a customer had purchased. It is a "big picture" approach that integrates the sales, order fulfillment, and customer service, and co-ordinates and unifies all points of interaction with the customer, throughout the Customer Life Cycle (CLC). The technological solutions are built on a total knowledge of the customer, and require technologies capable of supporting all forms of customer contact. Arguably, CRM is a business strategy to get, grow, and retain the right customers, leading to long-term profitability and to optimize long-term value. CRM is essential to create a sustainable competitive advantage based on relationships, not just products. Therefore, CRM requires a customer-centric business philosophy and culture to support effective marketing, sales, and service processes.

### 1.4 CRM History

Early eighties saw emergence of Database marketing and new and innovative ways were found to Link Company's profile with that of the customer behavior. Advance systems were developed to track and keep the high volume of records needed to be kept accurately and required constant updatation. As companies began tracking database information, they realized that the information was barely complete to compile many other facets of the customer as to: what they buy regularly, what they spend, what they do. Companies were getting more and more interested to look into the lives of individual customers. The data compilation techniques were getting cluttered as more and more information was being compiled by the companies to get more and more information about their customers. The information overflow was becoming messier as companies failed to encash on the large information gathered. The date was uni-flow and companies were restless on this survey-like information, which was mainly repetitive in nature.

The Emergence of CRM Practice as observed by (Sheth and Parvatiyar, 1995b), developing customer relationships has historical antecedents going back into the pre-industrial era, Much of it was due to direct interaction between producers of agricultural products and their consumers, Similarly artisans often developed customized products for each customer, Such direct interaction led to relational bonding between the producer and the consumer. It was only after industrial era's mass production society and the advent of middlemen that there were less frequent interactions between producers and consumers leading to transactions oriented marketing. The production and consumption functions got separated leading to marketing functions being performed by the middlemen and middlemen are in general oriented towards economic aspects of buying since the largest cost is often the cost of goods sold.

In recent years however, several factors have contributed to the rapid development and evolution of CRM. These include the growing de-intermediation process in many industries due to the advent of sophisticated computer and telecommunication technologies that allow producers to directly interact with end-customers. In many industries such as airlines, banks, insurance, computer program software, or household appliances and even consumables, the de-intermediation process is fast changing the nature of marketing and consequently making relationship marketing more popular. Databases and direct marketing tools give them the means to individualize their marketing efforts. As a result, producers do not need those functions formerly performed by the middlemen. Even consumers are willing to undertake some of the responsibilities of direct ordering, personal merchandising, and product use related services with little help form the producers. The recent success of on-line banking, direct selling of books, automobiles, insurance, financial markets, etc., on the Internet, all attest to the growing consumer interest in maintaining direct relationship with marketers.

The de-intermediation process and consequent prevalence of CRM is also due to the growth of the service economy. Since services are typically produced and delivered at the same institution, it minimizes the role of the middlemen. A greater emotional bond between the service provider and the service user also develops the need for maintaining and enhancing the relationship. It is therefore not difficult to see that CRM is important for scholars and practitioners of services marketing {Berry and Parsuraman, 1991; Bitner, 1995; Crosby, et. al., 1990; Gronroos, 1995).

Another force driving the adoption of CRM has been the improvement in quality and emergence of many quality tools such as TQM, JIT, MRP, ISO, six sigma etc. When companies embraced Total Quality Management (TQM) philosophy to improve quality and reduce costs, it became necessary to involve suppliers and customers in implementing the program at all levels of the value chain. This needed close working relationships with customers, suppliers and other members of the marketing infrastructure. Thus, several companies, such as Maruti, IBM, HP, General Motors, Honda etc., formed partnering relationships with suppliers and customers to practice TQM. Other programs such as just-in-time (JIT) supply and Material-resource planning (MRP) also made the use of interdependent relationships between suppliers and customers (Frazier, Spekman, and O'Neal, 1988).

With the advent of the digital technology and complex products, systems selling approach became common. This approach emphasized the integration of parts, supplies, and the sale of services along with the individual capital equipment. Customers liked the idea of systems integration and sellers were able to sell augmented products and services to customers. The popularity of system integration began to extend to consumer-packaged goods, as well as services (Shapiro and Posner, 1979). At the same time, some companies started to insist upon new purchasing approaches such as national contracts and master purchasing agreements, forcing major vendors to develop key account management programs (Shapiro and Moriarty, 1980). These measures created intimacy and cooperation in the buyer-seller relationships. Instead of purchasing a product or service, customers were more interested in buying a relationship with a vendor. The key (or national) account management program designates account managers and account teams that assess the customer's needs and then husband the selling company's resources for the customer's benefit. Such programs have led to the foundation of strategic partnering within the overall domain of customer relationship management (Anderson and Narus 1991; Shapiro, 1988).

Similarly, in the current era of hyper-competition, marketers are forced to be more concerned with customer retention and loyalty (Dick and Basu, 1994; Reicheld, 1996). As several studies have indicated, retaining customers is less expensive and perhaps a more sustainable competitive advantage than acquiring new ones. Marketers are realizing that it costs less to retain customers than to compete for new ones (Rosenberg and Czepiel, 1984). On the supply side, it pays more to develop closer relationships with a few suppliers than to develop more vendors (Hayes et. al., 1988; Speakman, 1988). In addition, several marketers are also concerned with keeping customers for life, rather than making a one-time sale ( Cannic and Caplin, 1991). There is greater opportunity for cross selling and up selling to a customer who is loyal and committed to the firm and its offerings (Naidu, et. al., 1999).

Also, customer expectations have rapidly changed over the last two decades. Fueled by new technology and growing availability of advanced product features and services, customer expectations are changing almost on a daily basis. Consumers are less willing to make compromises or trade-off in product and service quality. In the world of ever changing customer expectations, cooperative and collaborative relationship with customers seem to be the most prudent way to keep track of their changing expectations and appropriately influencing it (Sheth and Sisodia, 1995). As companies began to improve on Customer Relationship Management, instead of simply gathering data for their own use, they began giving back to their customers not only in terms of the obvious goal of improved customer service by processing the gathered information two-way and rewarding the customers by incentives, gifts and other perks for customer loyalty. This was the beginning of the now familiar frequent flyer programs, bonus points on credit cards and a host of other resources that are based on CRM tracking of customer activity and spending patterns. CRM was now being used as a way to increase sales passively as well as through active improvement of customer service. With the increased fluidity of these programs came a less rigid relationship between sales, customer service and marketing. There was a desperate need for development of new strategies for more cooperative work between these different divisions through shared information and understanding, leading to increased customer satisfaction from order to end product.

As data grew and became more complex, analysis of the problem as to how reactive customer is to the offering of the company became more interest to the company. The dynamic nature of the customer to the offerings in the market place led to the emergence of Real Customer Relationship Management as its thought of today. As software companies began releasing newer, more advanced solutions that were customizable across industries, it became feasible to really use the information in a dynamic way. The relationship between the company and customer was coined and was looked to be marketing tool for all future transactions. Instead of feeding information into a static database for future reference, CRM became a way to continuously update understanding of customer needs and behavior. Branching of information, sub-folders, and custom tailored features enabled companies to break down information into smaller subsets so that they could evaluate not only concrete statistics, but also information on the motivation and reactions of customers.

The Internet provided a huge boon to the development of these huge databases by enabling offsite information storage. Where, before companies had difficulty supporting the enormous amounts of information, the Internet provided new possibilities and CRM took off as providers began moving towards internet solutions.

## 1.5 Why CRM?

Increasing global competition and fewer product differentiations has brought CRM to the forefront and the companies have realized that it makes sense to move from "product-centric view of the world to a customer-centric one," (Davenport). The overall purpose of CRM is to improve marketing productivity and enhance mutual value for the parties involved in the relationship. CRM has the potential to improve marketing productivity and create mutual values by increasing marketing efficiencies and/or enhancing marketing effectiveness (Sheth and Parvatiyar, 1995a; Sheth and Sisodia, 1995). By seeking and achieving operational goals, such as lower distribution costs, streamlining order processing and inventory management, reducing the burden of excessive customer acquisition costs, and through customer retention economics, companies could achieve greater marketing efficiencies. They can enhance marketing effectiveness by carefully selecting customers for its various programs, individualizing and personalizing their market offerings to anticipate and serve the emerging needs of individual customer, building customer loyalty and commitment; partnering to enter new markets and develop new products, and redefining the competitive playing field for their company (Sheth and Parvatiyar, 1995a). Thus, stating objectives and defining the purpose of CRM in a company helps to clarify the nature of CRM programs and activities that ought to be performed by the partners. Defining the purpose would also help in identifying suitable relationship partners who have the necessary expectations and capabilities to fulfill mutual goals. It will further help in evaluating CRM performance by comparing results achieved against objectives. These objectives could be specified as financial goals, marketing goals, strategic goals, operational goals, and general goals.

Similarly, in the mass-market context, consumers' expect to fulfill their goals related to efficiencies and effectiveness in their purchase and consumption behavior. Sheth and (Parvartiyar, 1995a) contend that consumer is motivated to engage in relational behavior because of the psychological and sociological benefits associated with reduction in choice decisions. In addition, to their natural inclination of reducing choices, consumers are motivated to seek the rewards and associated benefits offered by CRM programs. Moreover, technology has ripened to the point where it is possible to put customer information from all over the enterprise into a single system through incorporation of technology.

### 1.6 CRM and Business Performance

Customer relationship management related activities make a dramatic impact on profitability (Reichheld, 1996). The characterization of CRM by (Bennet, 1996) mirrors the view. According to him, CRM seeks to establish 'long term, committed, trusting and cooperative relationships with customers, characterized by openness, genuine concern for the delivery of high quality services, responsiveness to customer suggestions, fair dealing and the willingness to sacrifice short term advantage for long term gains'. In yet another view of CRM with reference to profitability Fox & Stead, 2001 define CRM to be 'the establishment, development, maintenance and optimization of long term mutually valuable relationships between consumers and the organizations'. Successful customer relationship management focuses on understanding the needs and desires of the customers and is achieved by placing the needs at the heart of the business by integrating them with the organization's strategy, people, technology and business processes. Processes in turn alter the business performance of the organization.

Customer profitability is emerging as an important dimension in which each (unique) customer can be described. A focus on customer-level profitability can also be conceived of as a reflection of marketing's changing role within the firm (cf. Webster, 1992). In this context, it is worth noting that marketing has traditionally lagged behind other functional areas of business with respect to the implementation of cost control systems. Another factor behind the interest in customer profitability (and its links to behavior and attitudes) is the development of information technology, e.g. in terms of ''data warehouses'', which allows for a detailed analysis of each customer.

Despite the growing interest in customer profitability, identifying profitable customers is likely to be easier said than done for most companies. The main reason is that few companies have an internal accounting system, which allows for an analysis of profitability at the individual customer level as claimed by many academicians (Reichheld, 1996). In actual practice, profitability data on the customer level are generally not collected in empirical studies carried out by marketing scholars. After all, profitability lies at the heart of the marketing concept. Similarly, marketing's link to profitability is stressed in the definitions of marketing offered by the Chartered Institute of Marketing and the American Marketing Association. It is assumed, in brief, that it is more profitable to keep existing customers than to attract new customers, and it is commonly assumed that customer satisfaction serves as a particularly important antecedent of customer retention and thus long-term customer relationships (cf. Anderson et al 1994, Rust et al 1995). However, to establish the link between Customer relationship and profitability needs more studies.

Customer profitability is a customer-level variable. It refers to the revenues less the costs which one particular customer generates over a given period. As such, this variable refers to the supplier's value of having one particular customer, not the customer's value of having a particular supplier. Customer profitability appears in two temporal forms in marketing-related literature. First, it appears as a matter of historical record. In this sense, a customer profitability analysis is similar to the company's profit and loss statement. The main difference is that a customer profitability analysis refers to *one* particular customer, whereas a profit and loss statement refers to all customers. A history-oriented customer profitability analysis can be made at several levels. A common point of departure is to calculate the contribution margin (gross contribution margin), i.e. sales revenue less all product-related expenses for all products sold to an individual customer during one particular period of time (cf. Wang & Splegel, 1994). Then, depending on the availability of data, sales, general and administrative expenses traceable to the individual customer are subtracted (Cooper & Kaplan 1991, Howell & Soucy 1990). The result of this calculation is the operating profit generated by the customer. An extension of this line of thinking is the computation of ''customer return on assets'', i.e. customer profitability divided by e.g. the sum of accounts receivable and inventory (Rust et al., 1996).

The other is customer profitability, which often takes the form of the output from a net present value analysis. The output is sometimes referred to as the ''lifetime value'' of a customer (cf. Heskett et al., 1997, Peppers & Rogers, 1993, Petrison et al., 1993, Rust et al., 1996). It has been defined, for example, as the stream of expected future profits, net of costs, on a customer's transactions, discounted at some appropriate rate back to its current net present value (Peppers & Rogers, 1997). A similar concept is ''customer equity'' which is seen as a function of the customer's volume of purchases, margin per unit of purchase, and acquisition, development and retention costs traceable to this customer.

A positive association is often assumed between purchase behavior and profitability in the marketing literature. That is to say, the ''more'' the customers purchase, the higher the level of profits. Such assumptions are found at different levels of analysis. On an aggregate level, i.e. the market-level, a volume-related link to profitability is often discussed in terms of the effects of economies of scale and experience curves. Assumptions that ''more are better'' (i.e. more profitable) are also frequently encountered at the segment level of analysis. For instance, in the segmentation literature, substantiality is a frequently mentioned criterion for determining segment profitability.

This criterion is commonly referred to in terms of volume. Consequently, volume-related segmentation bases, such as usage frequency, are common in normative approaches. In a business-to-business context, annual purchases in dollars have been used as a segmentation variable by (Doyle & Saunders, 1985). On the customer level of analysis, purchase behavior is assumed to affect profitability by effects on both revenues and costs. First, as the customer continues to purchase from the same supplier, the supplier's revenues increase. In addition, as the purchases continue, the customer may discover, and purchase, additional products in the supplier's assortment. In other words, the potential for cross selling may increase over time - which affects revenues positively (Kalwani & (Narayandas, 1995). It has also been claimed that the customer's price sensitivity may be reduced as the relationship continues (Reichheld and Sasser, 1990). Increases in prices may therefore serve to further increase revenues. In fact, many large customers were found to be unprofitable. Similarly, (Porter, 1980) has suggested that large-volume buyers are particularly prone to reducing the supplier's profitability - if the purchased volume represents a significant portion of the customer's costs or purchases, and if high fixed costs characterize the supplier's business. Thus, a myopic focus on the revenues generated by a customer may conceal important facts about the costs generated by the same customer.

CRM is a success factor. CRM requires considerable investments and changes in operational and organizational structures (Homburg et al., 2000; Wilson et al., 2002). The ultimate question is therefore whether customer orientation and the implementation of customer relationships are indeed important for a company's performance. Reichheld and Sasser (1990) presented an early and influential study that showed the tremendous impact that customer retention has on profitability and improves business performance. (Reichheld and Teal, 1996) specifically showed that the longer the customer relationship lasts, the greater its profitability becomes. These authors' conclusions were supported by (Storbacka et al., 1994) and (Yeung and Ennew, 2000).

Research and practical experience have offered a generally positive portrait of the effect of customer relationship management (CRM) on firm performance. It is argued sometimes that a company's strategic commitments may be an overlooked organizational factor that influences the rewards for a company's investments in CRM. The study and practice of customer relationship management (CRM) has experienced explosive growth over the past decade and extensive research provides various insights into the relationship between a company's CRM investments and its performance. (Gupta, Lehmann, and Stuart, 2004) find that customer acquisition and retention expenses have a significant, positive effect on firm value. Other studies report a positive relationship between a company's CRM technology investments and CRM performance (Jayachandran et al., 2005; Mithas, Krishnan, and Fornell, 2005). Other studies envisage CRM as a firm capability and, again, reports its positive effects on both CRM and business performance (Day and Van den Bulte, 2002; Reinartz, Krafft, and Hoyer, 2004). Specifically, when effect of a company's CRM on CRM performance is seen, as measured by customer satisfaction ratings, it is influenced by its prior strategic commitments. Strategic commitments can involve any long-term firm decision, such as the choice to enter specific markets or invest in products, brands, channels, or partnerships or technology.

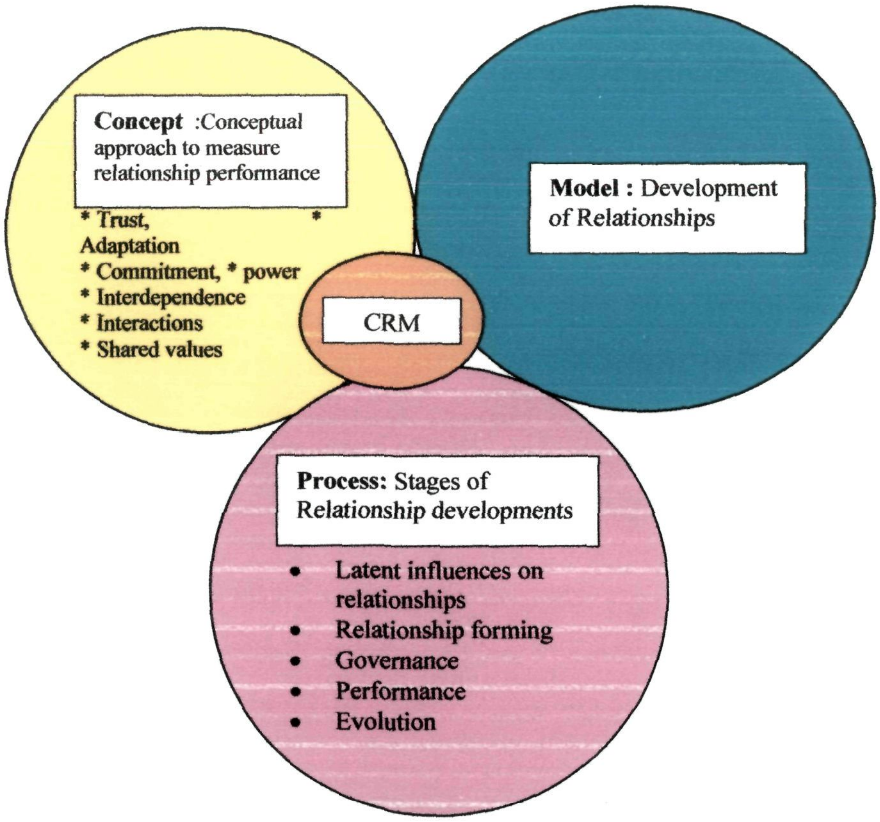
In addition to theoretical development, a prerequisite for the applied development of CRM is that it should demonstrably enhance firm performance. This is a necessary quality in the evaluation of any firm or marketing activity (Rust et al., 2004). Literature review substantially proves the belief that the implementation of CRM activities leads to firm value. Companies have developed proven CRM practices that enhance firm performance. Using a case study approach, (Ryals, 2005) shows that one of the business units she studied was able to achieve a 270% increase in business unit profits (above target) by implementing several straightforward CRM measures. Using a multi-firm (cross-sectional) database, (Srinivasan and Moorman, 2005) show that companies that invest more in CRM activities and technology have greater customer satisfaction. Using another multi-firm database, (Mithas, Krishnan, and Fornell, 2005) show that the use of CRM applications is associated with increased customer knowledge, which in turn is associated with greater customer satisfaction. Using yet another multi-firm database, (Jayachandran and colleagues, 2005) show that firm performance measured in terms of retention and customer satisfaction is greater for companies that have good relational information processes in place. (Lewis, 2004; Thomas, 2004; and Gustafsson, Johnson, and Roos, 2005) all use data collected within a single firm over time to develop specific CRM applications to increase the company's performance. Gustafsson, Johnson, and Roos (2005) examine customer behavior over time and show that some of the intermediate relationship performance measures that emerge from the business-to-business literature (e.g., satisfaction, calculative commitment) directly and positively influence actual behavior in the form of retention within a business-to-consumer setting. (Payne and Frow, 2005) emphasize that one major element in any CRM system is the measure related to the value creation process. Thus, good CRM process measures provide the firm with the opportunity to gain deeper insights into how these intermediate process measures link to downstream firm performance.

### 1.7 CRM Research Directions

Relationship marketing research have been classified at various level (Wilson, 1995), i.e. Concept level (Gundlach and Cadotte, 1994; Morgan and Hunt, 1994; Kumar, Scheer and Steenkamp, 1995: Lusch and Brown, 1996, Doney and Cannon, 1997; Smith and Barclay, 1997). Model level (Hakansson, 1982; Iacobucci and Hopkins, 1992; Johansson et al, 1995; Bagozzi, 1995) and process (Dwyer, Schurr and Oh, 1987; Anderson and Narus, 1991) and, Wilson, 1995).

For practitioners, process level research provides more useful guidelines in developing and managing successful CRM programs and activities. Researches have appeared in the marketing literature on Partner selection (Schijns and Schroder, 1996; Stump and Heide, 1996), Conjoint analysis techniques for partner selection decisions in alliance type relationships (Mahajan and Srivastava, 1992), partner selection based on the evaluation of customers' perception relationship quality with their vendors (Dorsch et. al., 1998).

**Figure 1.1 CRM Research Directions**




Key account management programs and strategic partnering have also been examined in several research studies (Aulakh, Kotabe, and Sahay, 1996; Nason, Melnyk, Wolter, and Olsen, 1997; Wong, 1998) at the program level. Similarly within the context of channel relationships and buyer seller relationships several studies have been conducted on relationship governance process (Heide, 1994, Biong and Seines, 1995; Lusch and Brown, 1996). Kalwani and Narayandas, (1995) examined the impact of long-term relationships among small companies on their financial performance. Similarly, (Naidu et. al., 1999) examined the impact of CRM programs on the performance of hospitals. (Srivastava, et. al., 1998) examined the economic value of CRM assets. Researchers are now examining the relationship evolution process and relationship enhancement processes. Overall, it is expected that future research efforts are to be directed towards the process aspects of relationship marketing.

Convergence of CRM and relationship marketing is now taking place. These include database marketing (Shani and Chalasani, 1992; Schijns and Schroder, 1996), integrated marketing communications (Schultz et. al., 1993; Duncan and Moriarty, 1998; Zhinkan, et. al., 1996), logistics, and supply-chain integration (Christopher 1994, Fawcett, et. al., 1997). Some of these are applied as tools and work processes in relationship marketing practice. As more and more companies use these processes and other practical aspects such as total quality management, process reengineering, mass customization, electronic data interchange, value enhancement, activity based costing, cross-functional teams, etc. there is every likelihood that these shall converge with CRM in future.

Other than the tools and processes, a number of theoretical perspectives developed in economics, law, and social psychology are also being applied in CRM. These include transactions cost analysis (Noordeweir, John and Nevin, 1990; Mudambi and Mudambi 1995; Stump and Heide 1996), agency theory (Mishra, Heide and Cort, 1998), relational contracting (Dwyer, Schurr and Oh 1987; Lusch and Brown, 1996), social exchange theory (Hallen, Johanson and Seyed-Mohamed, 1991; Heide, 1994), network theory, game theory (Rao and Reddy, 1995), inter-organizational exchange behavior (Rinehart and Page, 1992), power dependency (Gundlach and Cadotte, 1994; Kumar, Scheer, and Steenkamp, 1995), interpersonal relations (Iacobucci and Ostrom, 1996), resource allocation and resource dependency perspectives (Lohtia 1997; Vardarajan and Cunningham, 1995), and classical psychological and consumer behavior theories , which have been used to explain why companies and consumers engage in relational behaviour (Iacobucci and Zerillo, 1997; Kahn, 1998; Sheth and Parvatiyar, 1995b; Simonian and Ruth, 1998). These studies in retrospection are enriching the understanding of customer relationship management. While new theories have emerged and are now in an infancy stage of emergence, yet linkages with the above theories shall help in understanding the holistic process of CRM and sub-disciplines of marketing. Therefore, to help advance a cohesive body of knowledge on this topic of growing interest and importance, this effort attempts to develop a conceptualization and description of CRM that adequately captures the true nature of the phenomenon.

In the last few years, Customer Relationship Management has emerged as a powerful business trend. There are different types of customers, different types of business models and selling strategies, and over time, there will be different CRM software to support these different models. In the past CRM, packages were developed as a tool set, and they were customized for specific industry. But now solutions have been developed end-to end. CRM customers are also demanding more and more knowledge management functionality. Essentially, in the e-Business economy, customers are demanding organizational knowledge on demand, anytime anywhere. In short, the future of CRM is bright indeed. CRM will become deeply ingrained as a business strategy for most companies. Technology will evolve while technical and organizational challenges are overcome.

Many reasons have been cited in the literature for the failure of CRM. Prompted by numerous reports in the popular press that emphasized the prevalence of CRM failure (cf. Rigby, Reichheld, & Schefter, 2002; Yu, 2001), academic research efforts initially focused on identifying the antecedents and consequences of CRM success. While those efforts uncovered critical success factors (e.g., Ryals & Knox, 2001; Ryals & Payne, 2001) and have provided some evidence of CRM's impact on organizational performance (Day & Van den Bulte, 2002; Reinartz, Krafft, & Hoyer, 2004), the growing body of literature on CRM is somewhat inconsistent and highly fragmented. This is because a common conceptualization of the phenomenon is still lacking. As the introductory excerpt illustrates, significant ambivalence exists among marketers as to CRM's nature: While some suggest that it is a specialized collection of technological tools, others stress it is a set of business processes that focus on managing the customer experience and still, others propose that it is best conceptualized as a comprehensive strategy for customer retention. Unfortunately, the ambiguity surrounding CRM's nature has also permeated the academic literature and, therefore, has generated research streams that address CRM from seemingly incongruent perspectives. One of many reasons for CRM failures is that companies concentrate on the customer contact processes without making corresponding changes in internal structures and systems. The factors, which can contribute to the success of CRM, are:

- Development of the Concept of CRM in the Organization.
- Involvement of the Top management.
- Encourage change management with people, process and culture.
- Adequate training of the Manpower.
- Ambience for managing change.
- Monitoring of CRM project and its enforcement.

As evident from the above factors, it is necessary to understand that not only the involvement from the management at each stage of the project implementation is important, yet to manage such change in an organization, through continuous improvement of processes and thorough monitoring is necessary.

Prompted, in part, by the highly publicized failure of customer relationship management (CRM) initiatives, academic research on CRM has begun to flourish. While numerous studies have yielded important insights, the extant CRM literature appears to be inconsistent and is highly fragmented due, primarily, to the lack of a common conceptualization. ''CRM...isn't a technology but a 'customer facing' system. That it is a strategy and/or a set of business processes. Over the last few years, few topics have generated as much interest among academics and practitioners as has customer relationship management (CRM). While evidence of the impact of CRM on firm performance is still scarce, business companies around the globe are spending on ''CRM technology.'' In fact, global expenditures on CRM technology are likely to exceed

US$17 billion (Aberdeen Group, 2003; www.crmguru.com), and that estimate surpassesUS$100 billion if the market is broadened to include CRM-related services e.g., consulting, customer care outsourcing, and change management; (Schneider, 2003). Future CRM directions shall be directed on the requirement of the customers and their desire and companies are expected to meet these desires through customer driven organizations only.

### 1.8 Chapter Scheme

The Entire thesis has been divided into seven chapters. The organization of the thesis shall be to facilitate the connectivity of individual chapters with the entire thesis work. A brief of the each chapter is enclosed establishing the flow and continuum from one chapter to another. While Chapter I has focused on the introduction of the concept of Customer Relationship Management and Business Performance. Chapter-II details out the Petroleum Sector brief of India, various companies in the Energy sector and the sample companies under reference. This also chapter details out the aspects of the Indian Oil, Bharat Petroleum and Hindustan Petroleum Corporation Limited, and other PSU units under study. Chapter III describes the current realities on CRM in the petroleum sector, especially in the public sector oil companies. Chapter – IV describes and summaries, on the earlier work done and compiled in reports/articles/dissertations/books and Journals in the area of Customer Relationship Management / Performance other areas related to this research. Chapter – V would primarily, describe and summaries aims and objectives of the research, formalizing research questions and rationale of the study, the structure of the research design, the data collection procedure, the survey instrument, data preparation procedures, its analysis. Chapter – VI relates to analysis and interpretation of the data and the chapter VII titled 'Conclusion and Recommendation' shall draw the conclusion from this study and discuss the recommendations for forging of strong customer relationships in the Petroleum sector. The limitation shall also be cited in this chapter.

# CHAPTER TWO: OVERVIEW OF THE PETROLEUM SECTOR

## Chapter outline

Petroleum sector has played a crucial role in the development of Indian Economy. Petroleum is one of the direct contributors of energy and therefore in the global scenario, more and more companies are now becoming conscious of the importance of the petroleum sector in the shrinking supply demand of petroleum products. Oil Companies have been taking steps to improve their business transactions with the individual customers and because of the same; there has been an effort by these companies to collectively raise the level of interactions with individual customers. There have been individual as well as collective efforts, which have been made public sector oil companies to improve visibility and targeting customer satisfaction. The sample frame of the research shall be dealt briefly in this chapter.

**2.1 Energy Scenario**

**2.2 Petroleum Scenario**

**2.3 Industry Structure and Developments**

**2.4 Public Sector Oil Companies**

**2.5 Environment Scanning of Oil Sector**

**2.6 Financial Indicators of PSU Companies**

## Chapter Two: Overview of the Petroleum Sector

### 2.1 Energy Scenario

From the Energy scenario, it can be seen that petroleum form one of the major constituents of energy in India and in the world. Though coal dominates most of the energy requirement in the commercial sector, it is petroleum energy, which has emerged one of the prime movers of the Indian economy in the last twenty years. The focus in this chapter shall be to reflect the global trends in Energy and why Petroleum is so important for the world. Beside the fact, that petroleum is the quickest form of generation of energy, its resources are limited. However, rapid industrialization and pace of growth has made this fuel more attractive. Nevertheless, this attraction has also brought itself evil, that its existence is becoming critical. The understanding of the energy scenario shall explain that with limited resources of petroleum around the world, the competition between companies for this 'me too' product category is to retain market share, develop customer loyalty and efforts of the company to enhance the long-term relationship with the customers. A review has been made based on the above assumptions.

Worldwide energy production and consumption from 2001 to 2025 (projected) is shown in Fig 2.1 below. The industrialized nations are the highest consumer of energy and the world energy consumption is expected to rise by 59 percent between 1999 and 2020, reaching 607 quadrillion British thermal units (BTUS). Fig 2.2 also shows the World primary energy Consumption by Energy Type. It can be summarily seen that the Energy Scenario is primarily dominated by Coal and Petroleum and they continue to the prime drivers of Energy for next 25 years.

**Fig 2.1 World Primary Energy Consumption (1980-2025)**

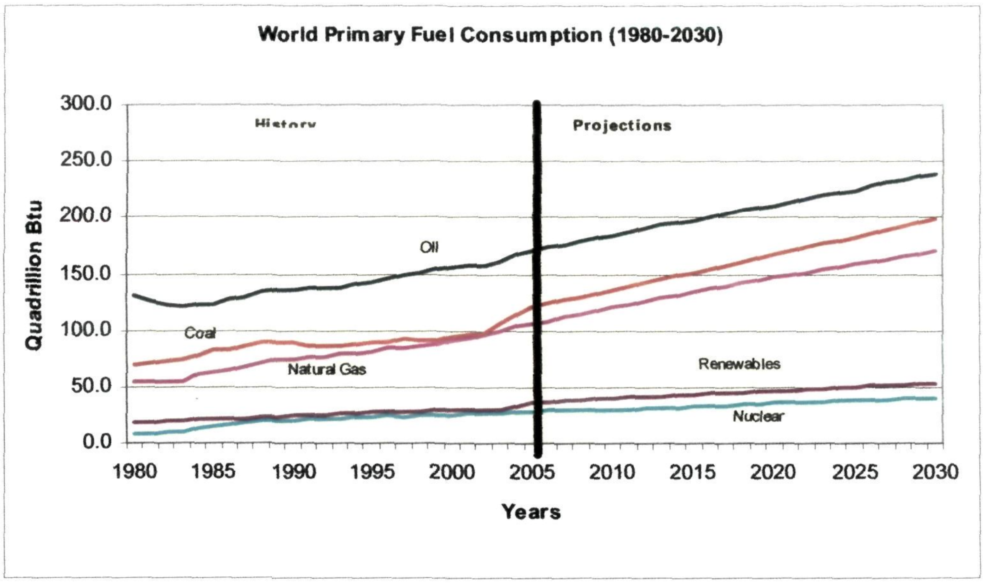
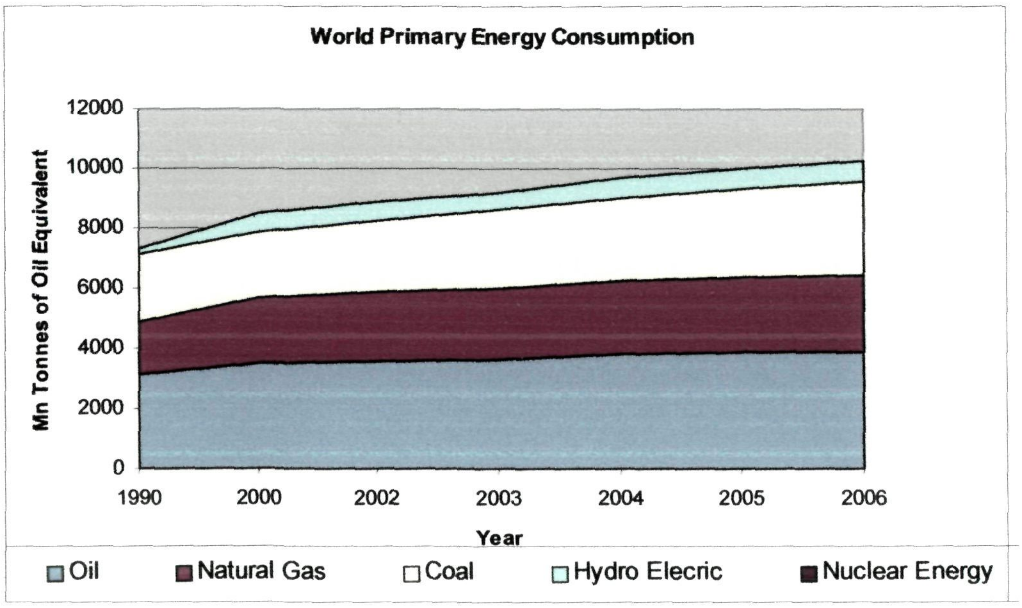



**Fig 2.2 World Primary Energy Consumption (By Fuel Type)**

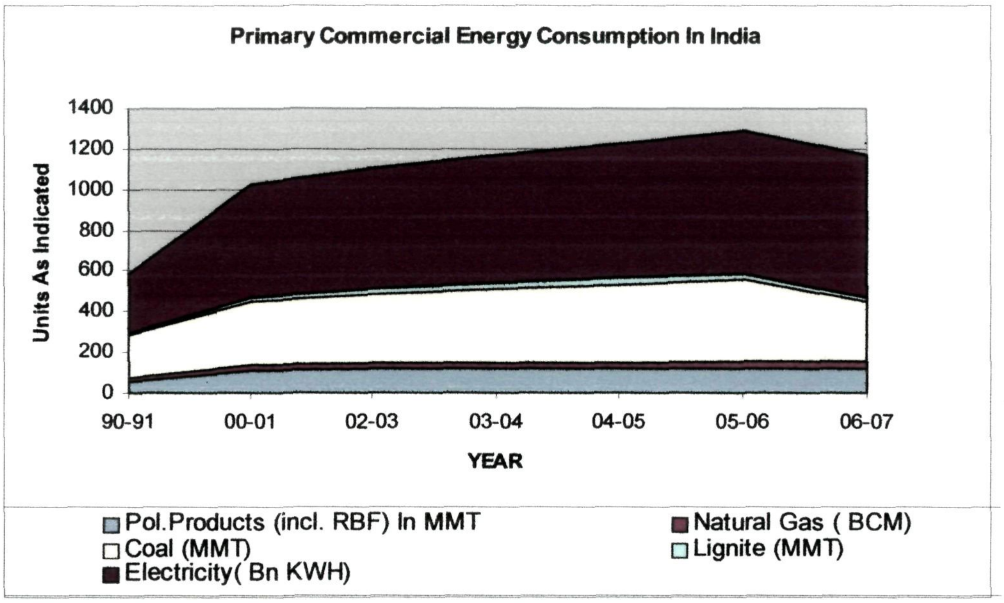



Source: BP Statically Review of World Energy, 2007,

Ref: Ministry of Petroleum and Natural Gas, Government of India, 2007

India's Energy Scene is also dominated by these sources of Energy and in the next 25 years, the importance of these two fuels cannot be underestimated. Fig 2.3 indicates the Primary Commercial Energy Consumption in India as of year 06-07, which Cleary indicates the importance of these two fuel types.

**Fig 2.3 Primary Commercial Energy Consumption in India (By Fuel Type)**




Source: Integrated Energy Policy, Planning Commission, Government of India, 2006

Ref: Ministry of Petroleum and Natural Gas, Government of India, 2007

Table 2.1 indicates the India's Population and the total Primary Energy Requirements in Million tones of Oil Equivalents vis-a –vis the net growth rate in GDP expected until 2032.

**Table-2.1 Projections for Total Primary Commercial Energy Requirements ( Mtoe)**

| Year | Population in Millions | GDP (Rs in Billion) @ 1993-94 Prices | | TPCES ( Mtoe) GDP Growth Rates | |
|---|---|---|---|---|---|
| | | 8% | 9% | 8% | 9% |
| 06-07 | 1114 | 17839 | 18171 | 394 | 403 |
| 11-12 | 1197 | 26211 | 27958 | 537 | 570 |
| 16-17 | 1275 | 38513 | 43017 | 732 | 807 |
| 21-22 | 1347 | 56588 | 66187 | 998 | 1142 |
| 26-27 | 1411 | 83145 | 101837 | 1361 | 1617 |
| 31-32 | 1468 | 122170 | 156689 | 1856 | 2289 |

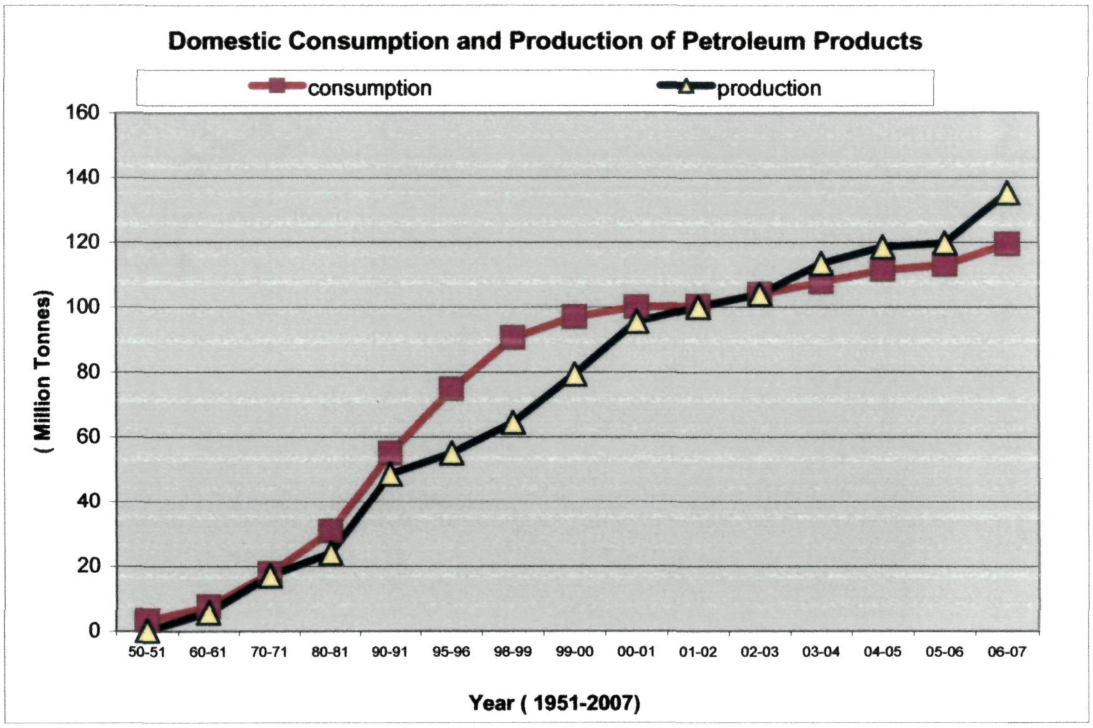
Source: Integrated Energy Policy, Planning Commission, Government of India, 2006

As the Economic performance of the country rises, the requirement of energy and particularly petroleum shall also increase. The GDP shall have a direct linkage with the consumption of the petroleum products as this commodity still consumes a major proportion of the export earning towards fuel imports and shall continue to be so in future years.

## 2.2 Petroleum Scenario

India consumed 130.47 Mt of crude oil products including refinery fuel and finished products of approximately 119.8 Mt as indicated in fig 2.4. Domestic production of crude oil has been between 30.3 Mt to 33.98 Mt during 1990-2007. The domestic production has stagnated, oil reserves hovered between 700 Mt and 750 Mt during this period. The total oil reserves were 739 Mt in 1990-91 and were estimated to be 786 Mt in 2004-05. The proved reserves to production (R/P) ratio were 23 in 2004-05. India now imports 72% of its consumption and the import dependence has grown rapidly over the years. As per the India's Integrated Energy policy report, published in 2006, India is expected to import around 92% of its energy requirement of petroleum and the consumption shall substantially increase and there is a widening gap between consumption and availability, and this gap shall widen in future years. India's imports were over 74% of the total consumption, it raises serious concerns over the petroleum security with the rising crude prices in the international market. India's pricing of the petroleum products are based on the Brent crude as well as the Dubai crude prices per barrel. The fig 2.5 indicates the international crude prices of the Brent prices for the year 2001-2006.

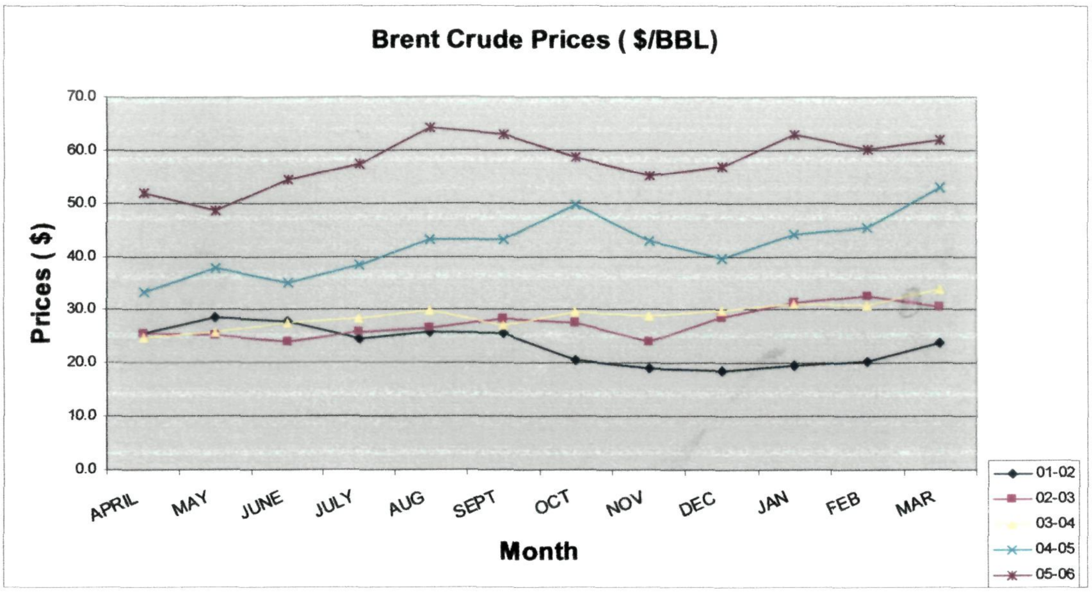
**Fig 2.4 Domestic Consumption and Production of Petroleum Products**




Source: Ministry of Petroleum and Natural Gas, Government of India, 2007

India imports of crude oil were 110.86 Mt of crude oil in 2006-2007 valued at Rs. Rs. 2199.91 billion. Petroleum oil imports as percentage of the India's total Exports were 45.5 % of the total gross imports and 31.5 % of the net imports of India.

**Fig 2.5 Brent Crude oil Prices (2001-06)**




As can be seen that the prices of crude have almost becomes three times within the last 5 years, and similar trend is likely to be seen over the years to the fact that the availability of the crude thru middle east countries shall be a problem in view of the Iraq and Iran crisis, Middle east crisis, unrest in African countries and international conditions. In addition to these restricted availability, the heavy dependence of the developed economies such as US, Japan and many European countries on oil and developing economies such as china and India are becoming heavily dependent on the usage of oil as energy resource. This is leaving a huge supply-demand difference and subsequently leading to price increase in international markets.

With the Backdrop on the Energy and oil scenario, and many limitations on the availability of the product, the petroleum marketing companies have focused in improving their market share and visibility through many of the concentrated efforts on building long-term relationships with the customer. Many of the key factors have been cited in the literature survey towards CRM initiatives and its linkage on business performance.

### 2.3 Industry Structure and Developments

The growth story of the Indian economy has continued during 2006-07. The strong growth momentum seen during the previous year was sustained with the latest estimates indicating that the Gross Domestic Product (GDP) has posted a robust growth of 9.4% over the previous year. This growth has been powered by the excellent performance in the manufacturing, trade, hotels, transport & communication services and financing, insurance, real estate & business services, all of which have witnessed double-digit growth rates during the year. Only the agricultural sector is lagging behind. Another positive aspect has been the indications that the growth of the economy is investment driven and not consumption driven. With the Indian economy poised to show strong growth in the years to come, experts reckon that India is on track to be amongst the top three economies of the world by the year 2050. Inflows from Foreign Institutional Investors stood at around USD 7 billion in 2006-07. At the same time, foreign direct investment amounted to USD 15.7 billion in 2006-07, representing a growth rate of 184 % over the previous year, thus giving a strong vote of confidence on the strengths of the Indian economy. These numbers are also reflective of the high degree of business optimism that is currently prevailing. In the midst of these positives, the main area of concern was the rising rate of inflation. The year saw the wholesale price index breaching the crucial 6.5% level, although by the end of the financial year, this was reined in at 5.7%. While the rising inflation rates could be attributed mainly to supply side issues, they remain a matter of great concern to the Government and the Reserve Bank of India. The rate of inflation has since come down further and is hovering around 4.4% by end July 2007.

In line with the strong GDP growth, the petroleum sector saw a significant increase in the consumption of petroleum products during 2006-07, with the year on year growth touching a level of 5.9%, which has resulted in sales of petroleum products growing from 113.21 Million Metric Tonnes (MMT) in 2005-06 to 119.85 MMT in 2006-07. The average growth in the consumption of petroleum products over the last five years has reached a level of 3.4%.

The growth in sales of High Speed Diesel (HSD) had remained flat in 2005-06. There has been a turnaround during 2006-07 when sales of HSD have increased by nearly 6.7%. Similarly, the sales of products like Motor Spirit (MS) and Aviation Turbine Fuel (ATF) have increased significantly. As the fertilizer and petrochemical industries shift to Natural Gas from Naphtha and Fuel Oil, the sales volume of these products have consistently been on the decline.

In the international markets, crude oil prices continued to rise in the first half of the year. The benchmark Brent crude prices touched a high of USD 78.69 per barrel on 8th August 2006. This was against the highest price of USD 67.33 per barrel in 2005-06. Subsequently, until February 2007, oil prices had declined and remained below USD 60 per barrel. The upward movement of oil prices resumed once again in March 2007 and the year ended with Brent crude touching a level of USD 68.64 per barrel. The rising trend in oil prices has continued in the latest financial year and the price has closed in on the record high of USD 79 per barrel on concerns of a tightening market. The International Energy Agency (IEA) estimates that despite four years of high oil prices, there is a likelihood of increasing market tightness beyond 2010, with demand increasing by an average of 2.2% a year between 2007 and 2012. Global demand for oil is expected to reach 95.8 million barrels per day, up from 86.1 million barrels per day in 2007.

The average cost of the Indian basket of crude in 2006-07 was around USD 62.4 per barrel, which was significantly higher as compared to the average price in 2005-06. Since the beginning of the new financial year from April 2007, the price of the Indian crude basket has risen further. The policy of managing the adverse impact of the high levels of crude oil prices on the economy, through a process of distributing the burden between the Government of India, the oil companies and the consumer, was continued during the year. The year 2006-07 also saw the average spread between light Brent crude and the heavier Dubai crude hover around USD 3.2 per barrel.

The retail segment of the petroleum market continues to be one of the most promising in terms of potential for growth and profitability. Consequently, it is an area where stiff competition can be expected from all the players, including those in the private sector. To some extent, the rising international prices have diminished the enthusiasm of the private players. However, the fact that the private players, in addition to the 2500 by the public sector oil marketing companies during 2006-07, commissioned about 700 new outlets indicates the potential of the market.

The coming days are expected to be full of challenges. While there is a temporary lull in the private sector because of the inability of the private players to pass on price increases on key products to the consumer, the competition can be expected to become intense in the coming years. India, as a market, is the focus of attention globally. With the economy maintaining its strong pace of growth, the petroleum sector is expected to see healthy increase in volumes in the coming years.

### 2.4 Public Sector Oil Companies

A Public Sector Undertaking is a corporation in the public sector in India, where management control of the company rests with the Government, it can be Central Government or the State Governments. There are about 237 PSUs all over India. Below given is a partial list of Public Sector Oil Undertakings of the Government of India. The information on these companies has been taken from the Company's websites and web portals like Google etc.

| | |
|---|---|
| IOC | : Indian Oil Corporation Limited |
| BPCL | : Bharat Petroleum Corporation Limited |
| HPCL | : Hindustan Petroleum Corporation Limited |
| IBP | : IBP Company Limited |
| NRL | : Numaligarh Refinery Limited |
| KRL | : Kochi Refinery Limited |
| AOD | : Assam Oil Division |
| CPCL | : Chennai Petro Chemical Limited |
| MRPL | : Mangalore Refinery and Petrochemicals Limited |
| ONGC | : Oil and Natural Gas Commission |
| BRPL | : Bongaigaon Refinery and Petrochemical Limited |
| OIL | : Oil India Limited |

**Indian Oil Corporation**

IOC is India's largest commercial enterprise, ranking 135th on the Fortune Global 500 listing. It began operation in 1959 as Indian Oil Company Ltd. The Indian Oil Corporation was formed in 1964, with the merger of Indian Refineries Ltd. Indian Oil and its subsidiaries account for 47% share in petroleum products market, 40.4% share in refining capacity and 67% downstream sector pipelines capacity in India. The Indian Oil Group of Companies owns and operates 10 of India's 19 refineries with a combined refining capacity of 60.2 million metric tons per annum. Indian Oil is widely recognized as India's dominant energy and fuel brand. Its product range covers petrol, diesel, LPG, auto LPG, aviation turbine fuel, lubricants, naphtha, bitumen, paraffin, kerosene etc. Xtra Premium branded petrol, Xtra Mile high-speed diesel, Servo lubricants, Indane LPG, Autogas LPG, Indian Oil Aviation are some of its prominent brands.

**Bharat Petroleum Corporation Limited**

BPCL is one of the largest public sector oil marketing companies in India has 3 operating refineries (including subsidiaries) and a strong network of marketing and distribution of petroleum products across the country. BPCL is one of the first few public sector companies who have leveraged technology to become more efficient, reduce costs and achieve greater customer satisfaction. BPCL is one of the first Public Sector Oil Company to implement Enterprise wide Resource Planning (ERP) solutions - SAP. Leveraging technology has also helped BPCL to have an efficient risk mitigation system in place.

**Hindustan Petroleum Corporation Limited**

HPCL is a Fortune 500 company, with an annual turnover of over Rs 91,448 crores ($20892 Million) (FY 2006-07), 16% Refining & Marketing share in India and a strong market infrastructure. The Corporation operates two major refineries producing a wide variety of petroleum fuels & specialties, one in Mumbai (West Coast) of 5.5 MMTPA capacities and the other in Vishakapatnam, (East Coast) with a capacity of 7.5 MMTPA. HPCL holds an equity stake of 16.95% in Mangalore Refinery & Petrochemicals Limited, a state-of-the-art refinery at Mangalore with a capacity of 9 MMTPA. In addition, HPCL is progressing towards setting up of a refinery in the state of Punjab in the joint sector.

HPCL also owns and operates the largest Lube Refinery in the country producing Lube Base Oils of international standards with a capacity of 335 TMT. This Lube Refinery accounts for over 40% of the India's total Lube Base Oil production. The vast marketing network of the Corporation consists of Zonal offices in the 4 metro cities and over 85 Regional offices facilitated by a Supply & Distribution infrastructure comprising Terminals, Aviation Service Stations, LPG Bottling Plants, and Inland Relay Depots & Retail Outlets.

**IBP Co. Limited**

IBP was originally founded by Abdul Karim Abdul Shakur Jamal under the name of Jamal's oil Company limited and was renamed as Indo-Burma Petroleum Company limited in 1909. Though, predominantly an oil company, IBP diversified its activities in to engineering and chemicals. In addition, later on as per the initiatives of the Government of India, it also ventured into the area of Explosives marketing for Mining Industry. IBP Co. Limited was merged with its parent company 'Indian Oil Corporation Limited' on 02-05-2007 under the Ministry of Petroleum & Natural Gas, Government of India. The merger ends the history of 98-year-old 'IBP Co Limited', the oldest oil company in India.

**Numaligarh Refinery Limited**

Numaligarh Refinery Limited (NRL), which was set up at Numaligarh in the district of Golaghat (Assam) in accordance with the provisions made in the historic Assam Accord signed on 15th August 1985. With its concern, commitment and contribution to socio-economic development of the state combined with a track record of continuous growth, NRL has been conferred the status of Mini Ratna PSU. The present authorized capital of the company is Rs. 1000 crores and paid up capital is Rs. 735.63 crores, which as on 31-03-2006 has shareholding of Bharat Petroleum Corporation Limited (62.96%), Govt. of Assam (12.35%), Oil India Limited (12.35%), and Oil Industry Development Board (12.34%).

**Kochi Refineries Limited**

KRL started its operation on September 1966. Kochi Refineries Limited, formerly known as Cochin Refineries Ltd (CRL), was formally registered on 6 September 1963 at Ernakulam. The refinery had an original design capacity of 2.5 million tons per annum (mmtpa) which was increased to 3.3 mmtpa in 1973. In Dec 1994, refining capacity was increased to 7.5 mmtpa (150,000 bpsd) along with revamp of FCCU to 1.4 MMTPA. Bharat Petroleum Corporation Limited (BPCL) acquired the Government of India's shares in KRL in March 2001. Consequent to the merger Order dated 18 August 2006 issued by Ministry of Company Affairs; the refinery has been amalgamated with Bharat Petroleum Corporation, hence forth to be known as BPCL-Kochi Refinery.

**Assam Oil Division (Under IOC)**

Assam Oil Company Ltd. (AOC) was one of the earliest enterprises in the world engaged in exploration and production of oil. Oil was discovered in Digboi in northeastern part of Assam in 1889 by Assam Railway & Trading Company (Originally formed with the object of drilling for oil, later on Assam Oil Company was created to carry out exploration work in Assam and adjoining areas), which established the predecessor company to AOC that was later acquired by Burmah Oil Company Ltd. BOC, founded in 1896, which played a major role in the oil industry in South Asia for about a century through its subsidiaries and in discovery of oil in the middle east, through its significant interest in British Petroleum. BOC also discovered Yenangyaung Oil Field in 1897 and, in 1901, discovered Chauk (Singu) Oil Field, both in Myanmar. Assam Oil Company was taken over by the BOC in 1910, and between 1910 and 1930, the BOC carried out extensive exploration work in Assam and adjoining areas. In 1937, BOC, Royal Dutch/Shell, and Anglo Iranian Oil Co applied for exploration licensee in India and started geophysical survey. Due to World War II, all activities were suspended. Assam

Oil is now a division of Indian Oil, under the banner of Assam oil Division (AOD) and is the marketing arm of IOC in the North East India.

**Chennai Petroleum Corporation Limited**

CPCL, formerly known as Madras Refineries Limited (MRL) was formed as a joint venture in 1965 between the Government of India (GOI), AMOCO and National Iranian Oil Company (NIOC) having a share holding in the ratio 74%: 13%: 13% respectively. From the grassroots stage, CPCL Refinery was set up with an installed capacity of 2.5 Million Tonnes Per Annum (MMTPA) in a record time of 27 months at a cost of Rs. 43 crores without any time or cost over run. Currently IOC holds 51.88% while NIOC continued it's holding at 15.40%. CPCL has two refineries with a combined refining capacity of 10.5 Million Tonnes Per Annum (MMTPA). The Manali Refinery has a capacity of 9.5 MMTPA and is one of the most complex refineries in India with Fuel, Lube, Wax and Petrochemical feedstock production facilities. CPCL's second refinery is located at Cauvery Basin at Nagapattinam. The initial unit was set up in Nagapattinam with a capacity of 0.5 MMTPA in 1993 and later on its capacity was enhanced to 1.0 MMTPA. The commissioning of the 3 MMTPA expansions cum modernization project enabled CPCL to meet the auto fuel quality norms of Bharat Stage II & Euro III equivalent.

**Mangalore Refinery and Petrochemicals Limited (MRPL)**

MRPL located at Katipalla, is a subsidiary of ONGC, set up in 1998. MRPL has a design capacity to process 9.69 million metric tonnes per annum and is the only refinery in India to have two hydro crackers producing premium diesel (high cetane). It is also the only refinery in India to have two CCRs producing unleaded petrol of high octane. Currently, the refinery is processing about 12.5 million tonnes of crude per year and had a turnover of US$ 8 billion during last year. MRPL, which was a joint sector company, become a

PSU subsequent on acquisition of its majority shares by ONGC. As on 1 April 2007, 71.62% shares are held by ONGC, 16.95% shares are held by HPCL and remaining shares are with public and financial institutions. MRPL has also been declared as Miniratna, a mini jewel, by Government of India in 2007.

**Oil and Natural Gas Corporation Limited (ONGC)**

ONGC incorporated on June 23, 1993 is an Indian public sector petroleum company. It is a Fortune Global 500 company, and contributes 77% of India's crude oil production and 81% of India's natural gas production. ONGC is engaged in exploration and production activities. It is involved in exploring for and exploiting hydrocarbons in 26 sedimentary basins of India. It produces about 30% of India's crude oil requirement. It owns and operates more than 11,000 kilometers of pipelines in India. Until recently (March 2007) it was the largest company in terms of market cap in India. Government holding in ONGC is 84.11 per cent. In 2002-03, ONGC took over Mangalore Refinery and Petrochemicals Limited (MRPL) from Birla Group and announced its entrance into retailing business. ONGC also went to global fields through its subsidiary, ONGC Videsh Ltd. ONGC Videsh Ltd. (OVL). ONGC has made major investments in Vietnam, Sakhalin and Sudan and earned its first hydrocarbon revenue from its investment in Vietnam.

**BRPL**

Born on 5th December 1969, BRPL was sold to Indian Oil in five phases. The last phase of disinvestment (74.46 %) was in favour of Indian Oil Corporation Limited (Indian Oil), a fortune- 500 Company. Consequently, BRPL became a subsidiary of Indian Oil with effect from 29th March 2001.With an investment of about Rs.963 crores in the Refinery and Petrochemicals plants, BRPL has the unique distinction of being the first indigenous grass root Refinery in the country integrated with a Petrochemical complex at one location. At present BRPL has a total Refining capacity of 2.35 MMTPA.

**OIL India Limited**

OIL, which became a wholly owned Government of India enterprise in 1981, is engaged in the business of exploration, development and production of crude oil and natural gas, transportation of crude oil and production of LPG. OIL also provides various E&P related services and holds 26% equity in Numaligarh Refinery Limited. OIL has over 1 lakh sq km of PEL/ML areas for its exploration and production activities, most of it in the Indian North East, which accounts for its entire crude oil production and majority of gas production. Rajasthan is the other producing area of OIL, contributing 10 per cent of its total gas production. Additionally, OIL's exploration activities are spread over onshore areas of Ganga Valley and Mahanadi. OIL also has participating interest in NELP exploration blocks in Mahanadi Offshore, Mumbai Deepwater, Krishna Godavari Deepwater, etc. as well as various overseas projects in Libya, Gabon, Iran, Nigeria and Sudan.

## 2.5 Environment Scanning of Oil Sector

The oil sector remains largely in the hands of the central Public Sector Undertakings (PSU's). The exception is refining wherein some 26% of capacity is now in private hands. The Indian Petroleum sector is characterized by the domination of the Indian Government oil companies since its first discovery over 120 years ago. The companies which have a presence in the Indian Petroleum scenario are AOD, BPCL, BRPL, CPCL, HPCL, GAIL , IBP, IOC, KRL, NRL, ONGC, MRPL, Reliance, Essar, Mittals, Shell, Exxon, Crain Energy etc, which are covering almost all aspects of Oil and Gas scenario from exploration, drilling, refining to Marketing. With the fact that ONGC, Reliance, Essar, Crain Energy are in the field of oil exploration, the marketing of the petroleum products until 2006 were dominated by the Public sector oil companies. Over 95% of the marketing infrastructure and product retailing is being done by them. Table 2.2 gives the Volume and Market share of the Public Sector Oil Companies.

**Table 2.2 Volume and Market Share of Public Sector Oil Companies (02-07)**

| | 02-03 | Market Share % | 03-04 | Market Share % | 04-05 | Market Share % | 05-06 | Market Share % | 06-07 | Market Share % |
|---|---|---|---|---|---|---|---|---|---|---|
| AOD | 938664 | 1.05 | 985225 | 1.09 | 1044265 | 1.09 | 995365 | 1.03 | 981245 | 0.98 |
| BPC | 19046888 | 21.38 | 19843252 | 22.02 | 21025053 | 21.96 | 21052925 | 21.78 | 23227002 | 23.28 |
| BRPL | 154198 | 0.17 | 116253 | 0.13 | 187372 | 0.20 | 165001 | 0.17 | 118661 | 0.12 |
| CPCL | 556424 | 0.62 | 607032 | 0.67 | 407148 | 0.43 | 429533 | 0.44 | 560778 | 0.56 |
| HPCL | 17499035 | 19.64 | 18227940 | 20.23 | 19160253 | 20.01 | 18396857 | 19.03 | 19789394 | 19.84 |
| GAIL | 87471 | 0.10 | 119246 | 0.13 | 296130 | 0.31 | 3134879 | 3.24 | 268085 | 0.27 |
| IBP | 3747113 | 4.21 | 3768837 | 4.18 | 4603042 | 4.81 | 4332422 | 4.48 | 4505254 | 4.52 |
| IOC | 46212140 | 51.87 | 45350962 | 50.32 | 47732686 | 49.85 | 46615738 | 48.21 | 48992009 | 49.11 |
| KRL | 622872 | 0.70 | 757285 | 0.84 | 604017 | 0.63 | 580274 | 0.60 | 236254 | 0.24 |
| NRL | 118672 | 0.13 | 91510 | 0.10 | 106845 | 0.11 | 150997 | 0.16 | 189937 | 0.19 |
| ONGC | 108057 | 0.12 | 256024 | 0.28 | 255241 | 0.27 | 144122 | 0.15 | 198104 | 0.20 |
| MRPL | 0 | 0.00 | 0 | 0.00 | 336423 | 0.35 | 685442 | 0.71 | 700170 | 0.70 |
| others | 1647694 | | 1947350 | | 2193176 | | 5290249 | | 2271990 | |
| TOTAL | 89091534 | 100.00 | 90123566 | 100.00 | 95758475 | | 96683555 | | 99766893 | |
| | | | | | | | | | | |
| * Others include BRPL, CPCL, GAIL, NRL, ONGC, MRPL | | | | | | | | | | |

**Source: Oil Company Data from Y-report, Ministry of Petroleum and Natural Gas**

The Volume of the Product by these companies is indicated in Fig 2.6

**Fig 2.6 Volume : Major Oil companies (2002-07)**

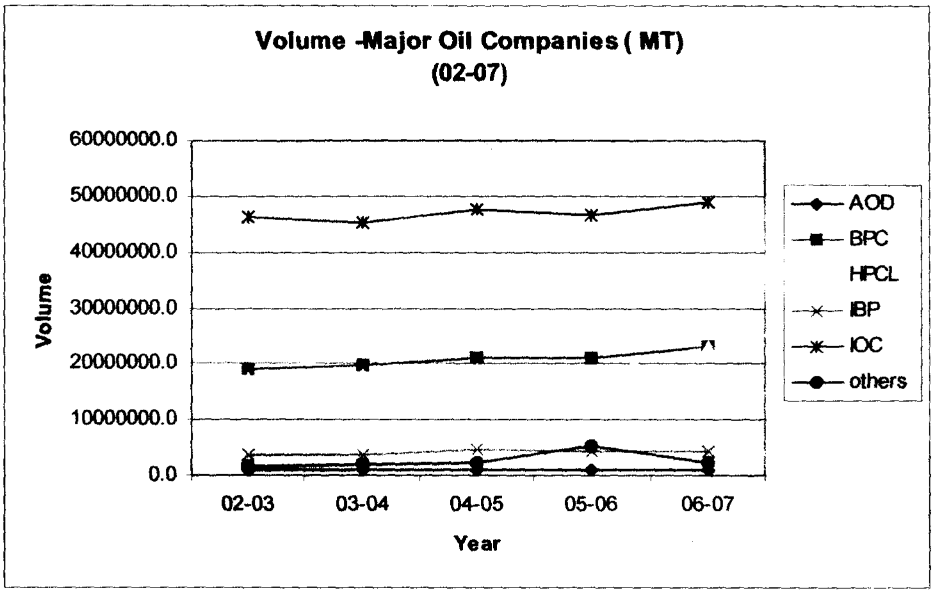
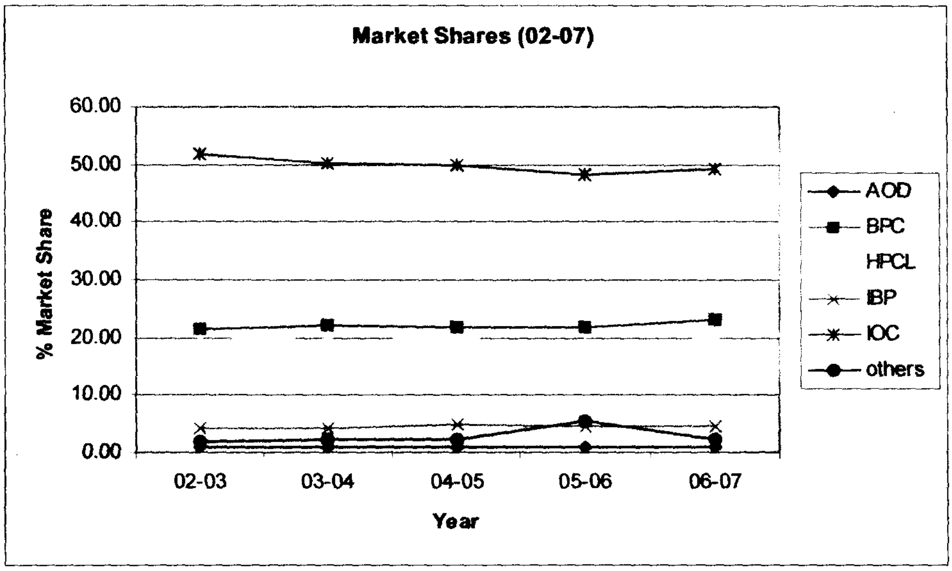



Fig 2.7 indicates the Market share of the Companies for the period 2002-07, with companies such as BRPL, CPCL, GAIL, KRL, NRL, ONGC, and MRPL being categorized under 'others' categories.

**Fig 2.7 Market Shares : Major Oil companies (2002-07)**



Another important aspect of the petroleum products is pricing. Before 2002, oil product prices were set by the government under an Administered Price Mechanism (APM), which is no longer in use. The prices of inputs and the products are now determined based on the import parity principle even for products wherein India is a net exporter. However, since prices are fixed collectively by the public sector oil companies, there is no price competition at the refinery gate or retail outlets. The Government of India, through the Ministry of Petroleum and Natural Gas, has frequently deviated from the import parity principle in fixing the effective price of domestic crude as well as the price of petroleum products at the retail level. Currently, there is no independent regulation of the upstream or downstream petroleum sector. The above pricing methodology leads to multiple distortions when coupled with the fact that there are differential custom duties on crude oil and petroleum products, differential excise duties and central levies on products, as well as differential state taxes and a normative pooling of the transport costs. These distortions and their impact on the profitability of central PSUs and private refiners are further compounded by subsidies on LPG and kerosene, which are exclusively marketed by central PSUs that share part of the subsidy burden. Efficient cost based private refiners with no marketing obligations have thus had extraordinary advantages in this distorted market. Even public sector refineries or upstream operations such as Oil & Natural Gas Corporation (ONGC) make large profits while oil-marketing companies lose money. This has restrained the growth of private sector retailers who find it simpler to sell to the public sector marketing companies at import parity prices. Other barriers to private sector's entry into retailing include a minimum investment hurdle of Rs.2000 crore and the absence of a common carrier principle in the distribution and marketing sectors. The challenges facing the petroleum and natural gas sectors is to ensure crude oil and gas supplies in a constrained world market amidst rising prices; demand management of petroleum products; rational pricing of petroleum products and natural gas; removal of entry barriers for private players in distribution and retail business in order to create real market competition; regulation of upstream and downstream sectors; improving the administration of LPG and kerosene subsidies and, environmental management through product up-gradation.

### 2.6 Financial Indicators OF PSU Companies

The indicators were collected for the three companies, which signifies the financial performance of the individual company, were as follows:

- Sales (Rs. Crores.)
- PBIT (Rs Crores )
- Employee (Number)
- Volume (TMT)
- Market Share (%)

To have a commonality among the data collected and to have uniformity among the companies, it was desired that the data collected is from a reliable source and is authenticated. In this case, initially the data was collected from individual oil company; however, the method of representation and conversion into a uniform single parameter was based on judgment. To avoid this disparity and personal bias, The CMIE (Center of Monitoring Economy), which is the database referred in the most of the public accounting in fiscal and revenue model was selected for referral. The data was collected from the CMIE's database know as Prowess database for the last 5 years.

### PROWESS

Prowess is the most reliable and empowered corporate database. It contains a highly normalized database built on a sound understanding of disclosures in India on about 8000 companies. The database provides Product profiles, Plant Details, Energy Note, Energy consumption details and other financial details, etc.

Prowess provides information on around 8500 companies. The coverage includes public, private, co-operative and joint sector companies, listed or otherwise. These account for more than seventy per cent of the economic activity in the organized industrial sector of India. This makes Prowess the most comprehensive database of the Indian corporate sector.

Prowess exploits the detailed disclosures, which are mandatory in the annual accounts of companies in India. The coverage includes the detailed profit & loss account and balance sheet statements and ratios and funds flows based on these, half yearly results, products and plants, raw materials, energy details, history of capital changes, bonus and dividends, stock prices and related information, expansion plans etc.

Different companies present accounting information differently. Inter year comparison, growth rates, inter-company comparisons and industry aggregates are all compromised by the uncritical use of raw data from annual accounts. Databases are also subjected to rigorous formal validation and quality control.

Prowess generates scores of reports for each of the companies in the database. The reports contain detailed information and hundreds of ratios and interpretations. Presentation and analyses are tuned for different kind of companies and industries, like manufacturing, financial services, etc. The reports exploit the underlying detailed and reliable database and draw upon the rich analytical skills of CMIE researchers.

A sprawling nation-wide network to collect information, highly trained human resources and sophisticated technologies ensure that Prowess is the most up-to-date corporate database in India. The database is kept up-to-date at the users end by providing daily and fortnightly updates. Prowess permits the intelligent selection, comparison, aggregation, etc. of industry groups. This intelligence built into the system makes Prowess the most scientific and transparent means to study an industry. Industry analysis in Prowess enables the generation of industry-wide income and expenditure statements, balancesheets, ratio analysis, bench marking of industry averages and inter and intra industry comparisons.

The Financial Indicators for the year 2002-07 as follows:

**Table 2.3 Calculation of Average PBIT (% of Sales)**

| PBDIT | | | | | |
|---|---|---|---|---|---|
| **COMP** | **02-03** | **03-04** | **04-05** | **05-06** | **06-07** |
| BPC | 3613 | 4294 | 3565 | 1448 | 4142 |
| BRPL | 365 | 486 | 719 | 320 | 368 |
| CPCL | 700 | 742 | 1333 | 1135 | 1307 |
| HPCL | 3137 | 3642 | 2608 | 1373 | 3400 |
| IOC | 11050 | 12443 | 8703 | 10053 | 14653 |
| NRL | 585 | 615 | 750 | 670 | 815 |
| ONGC | 20462 | 19303 | 27822 | 32284 | 34075 |

**Table 2.4: Calculation of Average Sales (Rs. Crores)**

| SALES | | | | | |
|---|---|---|---|---|---|
| **COMP** | **02-03** | **03-04** | **04-05** | **05-06** | **06-07** |
| BPC | 60026 | 66618 | 80361 | 86774 | 109461 |
| BRPL | 2230 | 3453 | 5326 | 6472 | 6588 |
| CPCL | 9151 | 10003 | 17242 | 26966 | 31055 |
| HPCL | 55242 | 59386 | 66650 | 78816 | 99358 |
| IOC | 135941 | 149461 | 173617 | 219243 | 255764 |
| NRL | 2962 | 3375 | 4476 | 6017 | 8113 |
| ONGC | 35484 | 33086 | 46850 | 49925 | 59687 |

**Table 2.5 Calculation of Average Sales Volume (MT)**

| SALES VOLUME | | | | | |
|---|---|---|---|---|---|
| COMP | 02-03 | 03-04 | 04-05 | 05-06 | 06-07 |
| BPC | 19669760 | 20600537 | 21629071 | 21633199 | 23463256 |
| BRPL | 154198 | 116253 | 187372 | 165001 | 118661 |
| CPCL | 556424 | 607032 | 407148 | 429533 | 560778 |
| HPCL | 17499035 | 18227940 | 19160253 | 18396857 | 19789394 |
| IOC | 50897917 | 50105024 | 53379992 | 51943525 | 54478507 |
| NRL | 118672 | 91510 | 106845 | 150997 | 189937 |
| ONGC | 108057 | 256024 | 591664 | 829565 | 898274 |

**Table 2.6 Calculation of Average Employee (Number)**

| EMPLOYEES | | | | | |
|---|---|---|---|---|---|
| COMP | 02-03 | 03-04 | 04-05 | 05-06 | 06-07 |
| BPC | 14576 | 14381 | 13953 | 13876 | 13968 |
| BRPL | 1780 | 1761 | 1741 | 1723 | 1717 |
| CPCL | 1640 | 1715 | 1699 | 1672 | 1651 |
| HPCL | 11213 | 11088 | 10561 | 10778 | 10891 |
| IOC | 31500 | 30801 | 30430 | 30048 | 31724 |
| NRL | 658 | 674 | 683 | 705 | 718 |
| ONGC | 39532 | 38033 | 36185 | 34722 | 33810 |

**Table 2.7 Calculation of Market Share (%)**

| MARKET SHARE | | | | | |
|---|---|---|---|---|---|
| **COMP** | **02-03** | **03-04** | **04-05** | **05-06** | **06-07** |
| BPC | 22.10 | 22.89 | 22.66 | 23.13 | 23.58 |
| BRPL | 0.17 | 0.13 | 0.20 | 0.18 | 0.12 |
| CPCL | 0.63 | 0.67 | 0.43 | 0.46 | 0.56 |
| HPCL | 19.66 | 20.25 | 20.07 | 19.67 | 19.89 |
| IOC | 57.19 | 55.67 | 55.92 | 55.53 | 54.75 |
| NRL | 0.13 | 0.10 | 0.11 | 0.16 | 0.19 |
| ONGC | 0.12 | 0.28 | 0.62 | 0.89 | 0.90 |

These indicators were available in the secondary data; however, in the context of research, whether the customer perceives these factors as dependent for building relationship with the company and therefore, can be called as the impacting factors of relationship, or if there are other factors which affects performance which impacts the performance of the public sector oil company shall be seen in subsequent chapters.

# CHAPTER THREE: CRM IN PETROLEUM SECTOR

**Chapter outline**

Oil Companies have been taking steps to improve their business transactions with the individual customers and because of the same; there has been an effort by these companies to collectively raise the level of interactions with individual customers. There have been individual as well as collective efforts, which have made public sector oil companies to improve visibility and targeting customer satisfaction. The chapter discusses the area of scope of the CRM efforts in the companies under study and the possible consequences of these efforts. The Chapter highlights the modus operandi of these companies, their efforts to segment the market and the controlling characteristic of each company. The importance of this study in context of customer relationships shall also be reviewed.

**3.1 CRM Initiatives in Energy Sector**
**3.2 CRM Initiatives in Petroleum sector - The PSU focus**
**3.3 CRM Initiatives Petroleum sector - The Private focus**
**3.4 New CRM Initiatives in Petro-retailing**
**3.5 PSU - Research Perspective**

## Chapter Three: CRM in Petroleum Sector

### 3.1 CRM Initiatives in Energy Sector

The consumption pattern of petroleum as indicated in the earlier chapter is a clear evidence of the statement that petroleum shall hold a key to India's economic performance. Various Economic reports suggest that with the current rate of growth of economy, India shall be the leading economic power in the world in another 20 years because of the human index. Therefore, the humans or the customers shall hold the future of any company. In the energy sector, our focus and our efforts shall be restricted to the field of petroleum for this research activity.

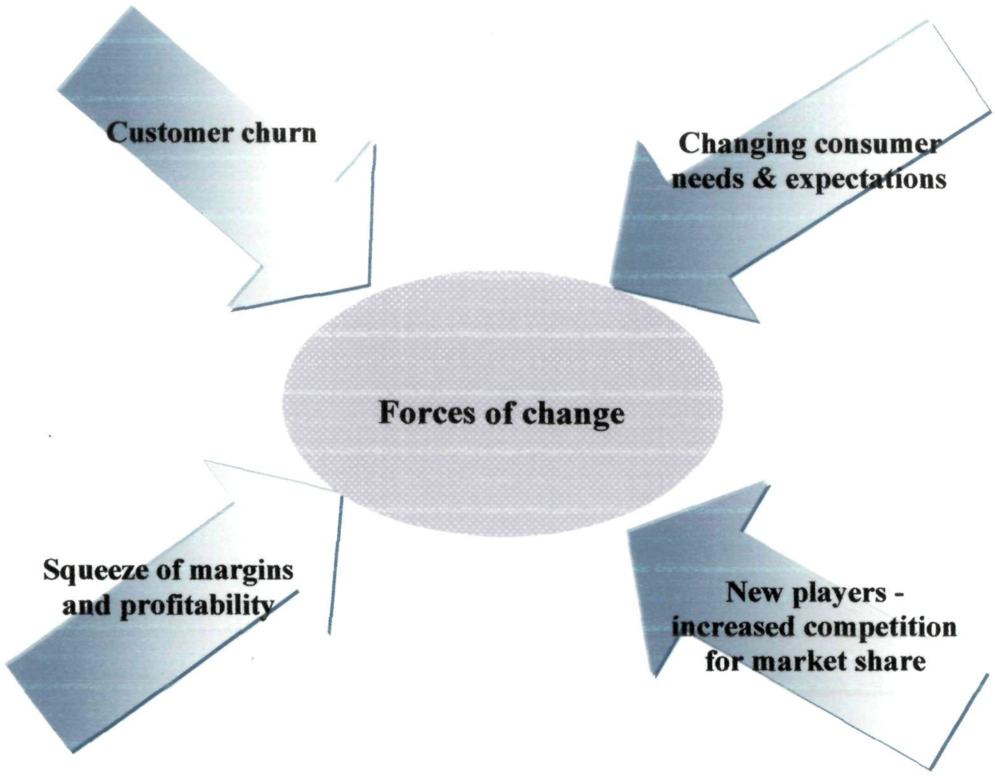
In petroleum sector, India is also showing early signs of aligning with global trends in petro-retailing with forces working as depicted in fig 3.1. The market is becoming dynamic because of the changing need and expectations of the customers and entry of new players. Moreover, as per the global trend, the market is slowly moving towards increasing revenue from non-fuel related and further intensifying the competition within the companies to garner maximum market share.

Some of the Forces responsible for bringing changes in the business of petro-retailing are:

- Customer churning
- Changing Customers needs and expectations
- New players –and increased competition for market share
- Squeeze of margins and profitability

The Forces are depicted in fig 3.1.

**Fig 3.1 Factors Influencing the Change in Petro-Retailing**




### 3.2 CRM Initiatives in Petroleum sector - The PSU focus

The petroleum sector has been the longest surviving profit making industry in the world right from the turn of the $19^{th}$ century and right into the first years of the $21^{st}$ century. Exxon-Mobil and Shell continue to post the highest turnover and profits in the world year after year. So does the three major oil companies in India. It is therefore obvious that the oil companies have a little secret up their sleeve that helps keep customers and earn substantial profits in spite of the high dosages of taxation, which Governments all over the world like to levy on oil products.

Oil Company has to serve variety of customers. The retail trade, which dispenses petrol and diesel to motorists, is the biggest segment. The customer is the Retail Outlet dealer and the end consumer is the motorist. Oil companies have a close relationship with the dealer community. They recruit them, train them and their employees, keep track of their profitability, punish them if they do not perform as desired and reward them when they deliver the objectives. Oil companies have been using computers ever since IBM started mass-producing the 1401's and historical records of dealers are available for the last 50 years. Not to mention the 8.5 crores LPG customer and over a million direct customers who are being services for similar products. To get the details of such large customer database oil companies have been using computer since the very beginnings, not as a customer relationship tool, but as a data management tool. Over the period, the meaning of data management had changed for the company, employees and its customers. The interaction between the customer is not ending by merely disbursing of the product, but today, both company as well its customers are actively engaged in gathering information about each other to take benefits of the relationships. Loyalty programs, Credit card services, community services, clubbing of services and many more initiatives have been taken to benefit the customers. This has lead to overflow of the information and required management of the database actively.

The petroleum Sector has been a PSU dominated sector, the downstream oil marketing companies have undergone a major changeover thanks to the privatization and deregulation of the sector. Entry of new entrants like SHELL, RELIANCE, NRL, ESSAR etc have brought Greenfield retail networks along with modern retailing concepts of international standards in India. Companies are bringing 'experiences' for the customer at these retail network and new strategies have been formulated at the drawing boards of all the oil majors to look at quick adaptation to higher customer expectations and newer formats are being planned to entice the customer. While competition and customer expectation are one part of it, companies are looking at newer ways to improve their business performances. 'Better business profits bring better performance'. However, with the shrinking margins on fuel sales in recent times are forcing the oil companies to look at newer avenues to generate revenues and leverage their surplus real estate in prime locations. Companies has been using these locations for selling fuels, only, but off-late they have been converted into forts of Customer relationships wherein the encounters between companies and customers are being nurtured into profitable and rewarding relationships for both and thereby improving business performance. The new source of these revenues could be ATMs, Rural input centers, Wayside amenities, food courts, convenience stores etc. At a time when these concepts are gaining momentum, it would be proper to get insight of the prevailing dynamics and to seek explanations to the premise if at all these are helpful in transforming business performances of the company.

The Retail sector has seen the onslaught of many competitors in a short span of time. The competition not only had put pressure on profit margins for the retail business – rising crude price being a major factor affecting the performance of the company. Rapid network buildup by the industry and consequent drop in volume sold per outlet was a concern that PSU oil companies faced and had geared up to emerge ahead of competition – by building inherent strengths and launching attractive customer centric initiatives. The competitors though launched some of the initiatives also, but the pace of the competition was the deciding factor. Launching of branded fuels, opportunity in alternate fuels – especially CNG and Auto LPG and opportunity in the non-fuels business were seen as the high advantage areas. Companies were concerned and conducted a through market research in understanding of customers, new formats, tying up with best in class operators were some initiatives launched by these companies. It was soon realized that the key to success is a differentiated service at the forecourt and the winner will be the one who ultimately delivers the promises. In order to succeed, it is therefore, essential to anticipate the future, initiate revolutionary innovations and change the historical pattern of management by aligning strategy, structure, people, culture, processes and ultimately working in teams to meet the contemporary business imperatives.

The industry scanning was done to see the CRM initiatives taken by some of the companies in the Petroleum Sector. The largest public sector oil company IOC also looked the competition with similar ease. Launching of premium fuels, XTRAPREMIUM petrol and XTRAMILE diesel, launching of XTRAPOWER fleet card program, the "New Look" petrol / diesel service stations with "ConveniO" shopping stores, snap services, quick Lube change, automatic car wash and multi-product dispensing pumps and tieing up with many banks to launch co-brand card, the "Indian Oil Citibank Card" were the initiatives which IOC had taken. Special arrangement with lead banks were done to promote usage of XtraPower Fleet Card, XtraRewards Card. Indian Oil introduced Multi Purpose Distribution Centers (MPDCs) in select rural and semi-urban markets, which, apart from selling petroleum products, had been dispensing medicines, farm equipment and other essential daily-use commodities. IOC promoted the concept of " EXTRA' in addition to the concept of fuel retailing at their outlets. The immediate necessity with IOC was to upgrade these petrol pumps to suit the current standards of retailing. The business models of the companies are changing and are fast turning into the mode of customer pull strategy and are bringing investments to lure the customers at these stations. IOC also planned similar concepts in retailing and has demonstrated customer relationship building exercise.

BPC had taken a number of steps to retain its position in the competitive market. The initiatives include a customer focused organization structure, new technologies, guaranteed quality and quantity through 'Pure for Sure' outlets, customer friendly schemes and 'In and Out' outlets, amongst others. It has nearly a million Petro Card customers and has over two lakh Fleet Card enrolled customers. The 'Pure for Sure' campaign was one of the first campaigns, which initiated CRM in petroleum sector. Like any of its competitors, 'In & Out' stores offer services and promotions through a web of alliances with FMCG majors like ITC, Pepsi, Cadbury's, Gillette, Pedigree, Himalaya and others. Services include ATMs of leading banks, Western Union money transfer, mobile recharge cards, Music stores (Planet M, Music World), beverages (Pepsi, coffee), snacks (Café Coffee Day, Coffee Day Express, Rasna) and a variety of impulse and top-up buys.

Hindustan Petroleum, erstwhile ESSO had started the process of data management in the year 1964, when the number of the customers was not only limited, but also less demanding. Consequent to this, HPCL started it ERP implementation exercise in 1996. During the period 1996 to 2003, the company processes were mapped and an integrated efforts ware made to understand that each of the process adopted is directed towards ensuring that not only system is updated, but also results in benefiting the interaction between company and its ultimate customers. Like its competitors, Hindustan Petroleum was facing major competitive pressures. The market offered little scope for differentiation due to the nature of the product, prices were low due to intra-country competition and availability was a prerequisite due to a number of alternative suppliers. Although the company was manufacturing finished products at its two refineries and many manufacturing plants, yet, there was still the need to improve operational efficiencies. The profit target from business operations was not commensurate and the company identified that it needed to reduce its overheads and improve the management of its operations. The company had been working with a software package, which has been developed way back in 1964, which originally satisfied the operational efficiency. The core operations like accounting and other sales modules were centrally processed at the corporate /regional headquarters and then reports were prepared. However, mounting pressure from the customers to have an online system for the products availability, inventories and pressures particularly from the sales team in view of the ongoing competition made company to undertake BPR exercise and thereby leading to ERP implementation and thus emergence of CRM practices.

HPCL has branded its retail outlets under the name "Club HP" positioned on the platform of "Outstanding Customer & Vehicle Care". HPCL has developed the "Club HP" concept after an exhaustive research of over a year, which encompassed collating feedback from more than 13,000 respondents from nine key markets across the country. The "Club HP" concept was to provide the assurance of "Quick Fills", "Expert, Personalized Service", "Total Vehicle Management" and "Consumer Conveniences". HPCL realized that consumers are highly conscious of the fuel that goes into their vehicles. Each Club HP outlet carries the HP assurance of Quality and Quantity of the products on offer. The "Club HP" concept also recognizes the fact that the consumer today gives high priority to "vehicle care" at petrol stations and simultaneously expects other value added services. The concept was launched during the year 2002-03, yet during 2005-06, 771 outlets were branded as "Club HP" taking the total number to 3018 as on 31.03.2006. Club HP outlets constitute 41% of total Retail network and generate more than 50% of total MS/HSD sales. To maintain the uniformity of the service at these outlets, the outlets are certified on parameters, which were defined based on the expected service levels of the customers. All HP outlets undergo the similar performance level and are measured on the similar level of services. Branded fuels were launched through these Club HP outlets and within a span of 2 years, HPCL's both the brands i.e. Power and Turbojet are the market leaders in branded fuels category, an outcome of the customer expectations. HPCL also started innovations towards key market relationships through various schemes in credit cards, retail automation, allied business models and other CRM emerging practices to boost its presence among customers.

However, looking at the CRM models as disposed by leading oil companies, it was obvious that they were following a common approach to the CRM business models. The fig 3.2 indicates that to have a common experience shared across the company, companies were looking at the uniform offerings, formats and locations to corner the customer loyalty and these were being aided from the four pillars of brand , technology, operations and overall organizational philosophy.

**Fig 3.2 CRM Model in PSU's**


### 3.3 CRM Initiatives in Petroleum sector - The Private focus

Reliance group's revenue is estimated to be the equivalent of 3.5 per cent of India's GDP and it is believed to be contributing as much as 17 per cent of the total profits of the private sector in India, was one of the aggressive competitors, which had promoted companies to launch massive customer interaction exercises. The company suffered from the fact that the prime city space in the country was pre-occupied by the major PSU companies, and there was hardly any opportunity in the retail sector to interact with the customers in the city. Reliance took this challenge and had taken the competition to the outskirts of the city. RIL's plans included a pan-India footprint in more than 800 cities and towns with a few thousand retail outlets of multiple formats and categories. The company had borrowed a leaf from the success story of motels as scripted mostly by the Gujarati Patels in the US. It has started over 100 company-owned fast food joints along various stretches of the 5,846-km Golden Quadrilateral and north south/ east-west corridor, where it has over 1,000 petrol stations up and running. Reliance had taken up the hospitality side of petroleum retailing business, which in right earnest can be gauged from the fact that it has signed up a technical services agreement with US-based Flying J, a highway hospitality service provider to the transportation sector. The plan is to set up such outlets every100-300 km or after four-five hour drive to coincide with the inevitable 'break-journey'. The bases of pushing this model of value-added retailing was a bid to corner what it believed will be the next sector after railway and air travel to hit the growth trajectory – road travel. Given the increasing focus on road infrastructure in the country, the model was to enroll as many as customer with this value added service in the petroleum scenario. Petroleum retailing is a low margin business mostly runs on the concept of volume margins. The product throughput variation can only go up with the extra facilities that are offered such as food court and change room. Quality of the service and hygiene in the hospitality segment was considered more important at these stations. Reliance has put a foot forward in this space by owning up responsibility for this service. The A1 Plazas served this segment well. Reliance has set up over 120 automobile service centers (R-Care) to go with the A1 Plazas to ensure the creature comforts of the highway traveler by ensuring easy access to reliable repairs. The plans were also drawn to put 'Refresh' –, up-market eating joints inside select petrol retail premises, to cater the moneyed highway traveler. To demonstrate the customer oriented approach, reliance promoted and staged such example in the relationship marketing in the petroleum sector. Reliance expects about 150 retail outlets under the Qwik Mart brand name to come up at select fuel stations across India. Qwik Mart would be an integrated quick service, quick transaction store, which will offer the convenience of buying household food and non-food merchandise, music, take-aways and convenience-oriented ancillary services without a price penalty. The Qwik Mart value proposition offers convenience through multiple offerings under one roof, speed of service and value based pricing. They will be sub-branded as 'Commute' for those located within cities, 'Journey' for those on highways, and 'Neighborhood' for those in residential areas. A range of products like beverages, snacks and confectionery will be available in all the three formats. These initiatives demonstrate the churning happening in the petroleum sector and are key factors by companies in drawing plans for long-term relationships with the customers.

Shell, which brought the concept of Petro-retailing in India about 10 years back, is no more a front player. The initial arrangement to take over the BPC outlet worked well with the company and overnight the Indian motorist were introduced to the concept of 'buying fuel'. Shell changes the focus from merely fuel buying experience to the 'image buying' experience in the petroleum industry. The concept of shopping at retail outlets and using prime land properties for additional revenue had promoted the companies to look at the business models of retailing in the years to come. However, the credit of shell, who is no more a competitive player in the petroleum industry in India, is still a saga, which the India petro-retailers cannot forget. In the petroleum scenario, many of the new players like Essar, NRL are yet to test their skills in the long run where over 30 million customers await for their entry in big way.

### 3.4 New CRM Initiatives in Petro-retailing

#### a) Retail Branding

Over the years, customer was faced with the dilemma of visiting the same company store but with different philosophy for each store. The services, delivery and the approach for each of the company stores were different and therefore, customers were patronizing the service delivery and not the companies. Over the years, this philosophy has confused the customers about the service parameters of the individual companies. Consequently, companies have adopted a strategy of "Retail Store brands branding', which has influenced the CRM efforts.

**b) Loyalty Based Card Program**

PSU Companies biggest leap in building consumer loyalty was to run a powerful card based loyalty programme with various card products such as Credit card/ Debit card/ Smart cards / Fleet cards etc. The coalition loyalty programme offered rewards event to cash customers. In addition, the members were also given an option to accumulate points at other coalition member establishments. These gives value up to 5% rewards on spends - for petrol/diesel fills, lubricants, car servicing, for tyres, batteries & accessories and for grocery purchased at respective company outlets. With this card, customers were roped into buying process on cards and offered cash back when even thinking any credit on buying was a distant dream. The cards were provided in easy denominations for uploading the amount on the card and are debited on purchase of fuels, which then could be redeemed at any participating Retail outlet for petrol, diesel, premix fuel, lubricants, servicing, tyres, batteries and accessories. Similarly, to facilitate the large fleet operators, many prepaid card for Fleet Owners, which has eliminated all cash transactions en-route, wherever the customers are taking fuel on Highways. Using this card the fleet owner can tracks vehicles through web based tracking system, simultaneously earning attractive & non-stop rewards on purchases. Using Web based technology, the Driver has to place the card on the reader and enter his PIN number. The information of the Vehicle location is conveyed to controlling company office, from where it is incorporated on the Web server and the vehicle owner can access the information. One card per vehicle is issued with preset limits – daily & fortnightly to take care of the driver's fuel purchases en-route. The card is debited only after the fuel is delivered avoiding any pilferage by the driver and restoring the confidence of the vehicle owner. Similarly, co branding of credit cards by the oil companies, e.g. HPCL and ICICI BANK, BPCL and Standard Chartered, IOC and

Citibank etc in various categories of customer's economic strata. The features of this co - branded card were the unique opportunity to save on fuel and services purchased from petrol pumps. At a time when banks were charging up to 2.5% of the surcharge on fuel purchased thru cards, this co-branded card with special waiver of the 2.5% surcharge on fuel purchases, highly attractive reward points and free fuel in exchange of the reward points, and was first among the category. Along with this card came 'Mileage Schemes' with discounts, accumulation and redeem-emption benefits. These cards were valid internationally, which could act like a credit and debit card, again with varied features. The latest in the loyalty card is the 'i-mint loyalty card' wherein six leading brands HPCL, ICICI Bank, AirTel, Indian Airlines, Lifestyle and Make my trip.com have joined hands to launch India's first Coalition Loyalty and Consumer Rewards Program. This card was only added to consolidate reward earnings in a single loyalty account. These points can be redeemed not only for fuel but also against a wide array of products and services. During 2005-06, 2.6 million loyalty card customers were enrolled taking the total number to over 5 million as on 31.03.06.

**c) Quality Assurance**

HPCL took several initiatives, many of them, first in the industry towards quality assurance under the banner of "Good Fuel Promise" at the Retail outlets. Addition of Mobile labs for carrying out surprise checks at the outlets restored customer confidence in the fuel quality they received making them attached to the retail outlet more significantly. Another milestone was the continuance surveillance audit at over 4000 outlets every quarter has resulted in remarkable improvement in the quality and service standards at the outlets. ISO certification was done to standardize the quality levels of service. Customer Satisfaction Index (CSI) survey was another step undertaken by the Regional Offices as a mechanism to receive customer feedback. Besides this, media campaign supported such efforts on the field's activities for making customer aware by the company across the country. This has created trust and confidence in customers.

**d) Leveraging on Technology to enhance Quality**

***(i) Retail Automation:*** Companies like HPCL pioneered the concept of e-fuel stations in India, having fully automated over 40 Retail outlets in western regions as a test case. Quality Assurance through Quality control is an international practice. Retails Automation focuses on monitoring the stocks, sales and inventory controls at Retail outlets by capturing, collating and analyzing all the transactions electronically. This resulted in availability of fuel at all stations which was contrary to the thinking a few years ago.

***(ii) Vehicle Management System:*** As a step towards ensuring quality of products during transportation to the Retail outlets, Companies have taken the pioneering step to monitor tank truck movements on real time basis through a technology based Vehicle Management System (VMS). Installation of this system on company owned tank trucks engaged for transporting MS/HSD has resulted in more productivity and better availability of fuel across stations. The benefits though indirectly, are accruing to the customer in the form of timely supplies.

***iii) New Visual Retail Identity:*** In response to customer demand, PSU oil Companies were the first to introduce the concept of New Visual Retail Identity to give attractive look and appearance to its Retail outlets as per world-class standards, which stand out in the Oil industry. The concept of Physical ambience as marketing tools was the premise of this project. Customer remembers the logo and the service as a brand recall.

***iv) Rural Initiative:*** As part of rural initiative, Companies promoted a new concept of collaborating the rural distribution channels in rural India to keep pace with the customer orientation. Other than fuel, seeds, pesticides and fertilizers were also being sold to the farmers through "Kisan Vikas Kendras" set up at these outlets. This resulted in generating the additional revenue for the company leading to improvement in performance of the outlet and attaching the company with customers at the grass-root level.

***v) Non Fuel Business:*** Market research had proved and already mentioned that there are certain non-fuel offerings that customers demand at fuel outlets. Companies grabbed this opportunity through various national tie-ups and helped in generating additional revenues in addition to delivering customer needs. Now, companies are focusing to collaborate with the best in class brands in the relevant categories. Many companies are now in agreement with brands like Cafe Coffee Day, Crossword Book Stores, Music World, Subway, Pizza Corner and e-Ticketing for Air Deccan and Spice Jet, kingfisher, Indian Airlines, MacDonald's, Dominos, Nirula, etc and efforts are being made to expand the number of partners by entering into tie-up with reputed International brands.

***vi) Training / Motivation of Dealers & Dealermen:*** People are integrated part of any delivery mechanism. Other than the physical ambience of the outlets, companies worked on, training Centers for "in-house" training programs were developed at prominently located company-owned model retail outlets in each Region for training dealers / dealer men on a regular basis.

The key person between the service delivery and the customer is the deliveryman stationed at the petrol pump. Oil Companies have understood that over the years, this person's behavior has stagnated to similar working conditions and needs to be attended. Dealer-men training "customer first" workshops were conducted covering over a lakh dealer men on all India basis in various training programmes held by profession agencies towards modification of behavior. This "In-sit-U" training program has become a regular feature of the customer-oriented workshops at micro-level of operation.

'Reward and Recognition' is part of any Customer driven organization. Companies also embarked on such activity and coined the scheme "Spot & Reward", which aims at giving immediate recognitions for the good work by the dealer men.

Besides these Customer oriented issues, PSU Oil Companies had undertaken a number of Intra-organization modifications in the processes to 'customer first' philosophy and have taken a leap forward in Retail Marketing.

**3.5 PSU – The Research Perspective**

The petroleum sector has been de-regularized by the Government, yet, the sector operates under some policy framework of the Government of India. The petroleum sector in the last 3-4 years has been exposed to competition and off late the customers have experienced many new avenues to' lure them and change their buying habits. New players have entered into the field of petroleum marketing and have stirred the competition. This has opened up many sectors with in the petro-retailing and many avenues towards the customer benefits have been staged. The Indian Marketing companies have dominated Indian Petro-retailing only and they are at the centre of attention in the vast petroleum market having billions of customers, which have now attracted the focus of these companies.

Some of the questions pertinent to the research focus are:

- What are the factors affecting petro-retailing?
- Are companies aware of these factors?
- How are the companies performance impacted by these factors?
- Do customers recognize these factors, which impact their relationship with the company?

These are some of the broader questions, which set the tone of this research in the context of Public sector oil companies.

# CHAPTER FOUR: LITERATURE REVIEW

## Chapter outline

This chapter primarily, describes and summaries, on the earlier work done and compiled in Reports/Articles/Dissertations/Books and Journals in the area of Customer Relationship management, business performance and other areas related to this research. This chapter shall identify the relevance of the research with the theoretical studies and the earlier research carried out. This Chapter will also describe some of the current work done on CRM, unfolding of the challenges of CRM, its Critical Success factors, satisfaction and dis-satisfaction studies, loyalty, Customer value, knowledge management and payback from CRM technology.

**4.1 Introduction to CRM**
**4.2 Relationship Marketing**
**4.3 Knowledge Management and CRM**
**4.4 Satisfaction and Dissatisfaction**
**4.5 Loyalty and CRM**
**4.6 Customer Value and CRM performance**
**4.7 IT and CRM**
**4.8 Strategic CRM Framework**
**4.9 CRM as a Strategy**
**4.10 Satisfaction and Profitability**
**4.11 Loyalty and Profitability**
**4.12 CRM measurement and its impact on business performance**

# Chapter Four: Literature Review

## 4.1 Introduction to CRM

Customer Relationship Management ("CRM") is the modern manifestation of business practices that Indians plasticized and understood well ahead of time. The ancient Indian history cites numerous examples of the relationships, when a small tradesmen knew each of their customers by name, understood what their needs and wants were, and were able to predict when they would be needing more of their particular product. Early product manufacturers understood this concept. They had only a few customers and needed to keep each one happy. As a single owner proprietor, chances were that he knows likes, dislikes, buying patterns, personal details, time of buy etc ("How's the local grocery store?") and file them mentally to serve them in that manner, but the marketing methods of the last half century - driven by market expansion have practically made it nearly impossible to work further on this strategy and needed something new to keep track of this level of detail. If it is a long-term profitable customer, that is mentally filed away too, with nary a computer in sight, in a word, it is personal and a very effective CRM. Customer Relationship Management (CRM) is a new way of doing something as old as business itself. Nevertheless, it is not easy to keep customers happy, and it is getting harder all the time. Several companies are turning to customer-relationship management systems and strategies to gain a better understanding of their customer's wants and needs. CRM has emerged as a core element of this strategy that focuses on delivering superior customer value through such elements as exceptional service and a willingness to cater to individual requirements. The relationship formation in CRM refers to decisions regarding initiation of relational activities for a firm with respect to a specific group of customers or with respect to an individual customer with whom the company wishes to engage in a cooperative or collaborative relationship. Hence, it is important that a company is able to identify and differentiate individual customers. This defines the objective, identification of customers and developing customer specific programs for relationship engagement with the customers.

The domain of customer relationship management extends into many areas of marketing and strategic decisions. Its recent prominence is facilitated by the convergence of several other paradigms of marketing and by corporate initiatives that are developed around the theme of cooperation and collaboration of organizational units and its stakeholder, including customers. CRM refers to a conceptually broad phenomenon of business activity; a phenomenon of cooperation and collaboration with customers, which has become the dominant paradigm of marketing practice and research and has the potential to emerge as the predominant perspective of marketing. From a corporate implementation point of view, CRM cannot be construed a simple software solutions for implementation project. Building customer relationship is a fundamental business of every enterprise and it requires a holistic strategy and process to make it successful. What CRM "allows companies is to gather and access information about customers' buying histories, preferences, complaints, and other data so they can better anticipate what customers will want. The goal is to instill greater customer loyalty." Reicheld (Loyalty rules, HBR press) defined six rules of loyalty and provided insight that process should be kept simple, straight, and easy to understand and must be practiced. Some of the key benefits of CRM are expressed as follows:

- Faster response to customer enquiries
- Increased efficiency through automation
- Deeper understanding of customers
- Increased marketing and selling opportunities
- Identifying the most profitable customers
- Receiving customer feedback that leads to new and improved products or services
- Obtaining information that can be shared with business partners

To remain in the competition, companies now have to strive to stay more closely connected to customers than their rivals, in ways that significantly influence these companies' profitability and performance. CRM as a business strategy, process, culture and technology, enable organizations to optimize revenue and increase shareholder value through better understanding the needs of customers. It helps them to learn more about customers' needs and behaviors in order to develop stronger relationships with them. After all, good customer relationships are at the heart business success. There are many technological components to CRM, but thinking about CRM in primarily technological terms is a mistake. The more useful way to think about CRM is to look it as a process that will help bring together many pieces of information about customers, sales, marketing effectiveness, responsiveness and market trends. It helps in establishing, development, maintenance and optimization of long term mutually valuable relationships between consumers and organizations. Successful CRM focuses on understanding the needs, desires of the consumer, and is achieved by placing these needs at the heart of the business processes by integrating them with the organization's strategy, people, technology and business processes. While CRM is about managing data to better understand and serve customers, CRM applications utilize information and properly integrate collected demographic data, Sales and purchase data, Shipping and fulfillment dates, Account information, Web registration , data Responses to campaigns, Service and support records and help diminish the demarcation between company and its customers. The idea of CRM is that it helps businesses use technology, human resources to gain insight into the behavior of customers and the value of those customers to provide better customer service, simplify marketing, and sales processes, cross sell products more effectively, help sales staff close deals faster, discover new customers and increase customer revenues. CRM is about creating a competitive advantage by being the best at understanding, communicating, and delivering and developing existing customer relationships in addition to creating and keeping new customers.

## 4.2 Relationship Marketing

Relationship marketing is often cited as the philosophical basis of CRM (Christopher, Payne, & Ballantyne, 2002; Ryals & Knox, 2001). CRM has its roots in relationship marketing inaugurated by the influential work by Berry (1983) and Christopher et al. (1991). To effectively demarcate CRM's domain, it is essential its links with relationship marketing. (Parvatiyar & Sheth, 2000) initiated this discussion and found there are also several distinct perspectives on relationship marketing, thought complicated. Berry (1983) initially coined the term, and defined relationship marketing as ''attracting, maintaining and in multi-service organizations—enhancing customer relationships''. Over the decade of the 1990s, the term was expanded to include relationship development and maintenance with other types of exchange partners, such as suppliers, competitors, and employees. This broadening of the relationship marketing concept was advocated by Morgan and Hunt (1994), who defined the phenomenon as ''all marketing activities directed toward establishing, developing, and maintaining successful relational exchanges''. This broad construct of relationship marketing is not without controversy though. Parvatiyar and Sheth (2000), among others, argued that such an expansive definition of relationship marketing threatens the viability of the discipline by blurring the boundaries of its domain. Hence, they suggest that relationship marketing is best defined as ''the ongoing process of engaging in cooperative and collaborative activities and programs with immediate and end-user customers to create or enhance mutual economic value at reduced cost''. Finally, in a retrospective evaluation of his original work, Berry (2002) suggests that relationship marketing can also be viewed, ''a philosophy, not just a strategy, a way of thinking about customers, marketing and value creation, not just a set of techniques, tools, and tactics''.

Relationship marketing is based on the generation of a foundation of shared interest, in which companies and customers are committed to each other. Companies strive to use interactions with customers to generate commitment, a lasting desire in customers to maintain a valued relationship, and trust, a readiness to rely on the exchange partner. Trust is considered especially critical for relational exchanges because it is a crucial determinant of commitment. An important antecedent of trust is communication (Morgan and Hunt 1994). Communication in the CRM context involves the sharing of information between a firm and its customers (De Wulf, Odeken-Schröder, and Iacobucci 2001). To establish and maintain relationships, it is also imperative that organizations use the information to shape appropriate responses to customer needs. In effect, information plays a key role in building and maintaining customer relationships.

(Parvatiyar & Sheth, 2000) conceptualized that relationship marketing is concerned with the organizational activities needed to establish, develop, and enhance relational exchanges (i.e., close, collaborative relationships). Nonetheless, it is important to highlight that the relationship marketing views articulated by (Parvatiyar and Sheth, 2000) and (Berry, 1983) differ from that advanced by (Morgan and Hunt, 1994) in that the former limit its domain to buyer–seller relationships while the latter favor including other types of exchange arrangements. Finally, it is worth emphasizing that the philosophical perspective articulated by (Berry, 2002) stands apart from the rest in that it advocates viewing relationship marketing as an organizing concept that should be at the centre of a company's activities. The foregoing discussion clearly points towards a high level of association between relationship marketing and CRM. The specific nature of their correspondence depends upon the particular view of relationship marketing that is adopted, with the apparent overlap between the two being the greatest when a process-based—as opposed to a philosophical —view of relationship marketing is held. Nonetheless, relationship marketing and CRM are different phenomena that are closely linked to each other and a distinction is difficult for it to be clearly understood.

CRM emphasis on relationships, as opposed to transactions, and is redefining how companies are interacting with their customers (Gummesson, 1999; Kotler, 1990; Sheth & Parvatiyar, 2000). CRM stresses two-way communication from supplier to customer and vice-versa to build the customer asset over time. Advances in technology, especially the Internet, have greatly enhanced the flow of dialogue, and the capture, interpretation, and dissemination of information. CRM is important because it provides enhanced opportunities by using data to understand customers and to implement improved relationship marketing strategies. Both CRM and relationship marketing conceptualize that exchange relationships evolve over the course of a lifecycle (i.e., both recognize that relationship development and maintenance is a process). Nonetheless, unlike relationship marketing, CRM does not focus exclusively on the establishment and maintenance of close, collaborative exchange relationships. More specifically, CRM is concerned with the development and maintenance of a portfolio of profit-maximizing customer relationships that is likely to include exchange relationships that vary along the transactional–relational continuum. That is, CRM is a strategically oriented process concerned with ''producing'' an ideal mix of customer relationships, while relationship marketing focuses only on the tasks needed to build and sustain relational exchanges. Consequently, CRM subsumes a collection of activities, for example, sub-processes related to the evaluation and prioritization of current and prospective customers, and market relating tactics that are not under the purview of relationship marketing. Therefore, although relationship marketing and CRM are both concerned with relationship development and maintenance activities, crucial differences regarding the intended process outputs (i.e., close, collaborative exchange relationships vs. profit maximizing and performance of customer relationships) and the (necessarily) broader nature of CRM indicate that the two are related but have distinct phenomenon.

The nature of association between CRM and relationship marketing is dramatic. Relationship marketing emphasizes customer retentions and long-term profitability through effective management of customer relationships (Christopher et al., 1991; Heskett et al., 1990; Reichheld, 1996). CRM is a management approach that seeks to create, develop, and enhance relationships with carefully targeted customers to maximize customer value, corporate profitability, shareholder value and ultimately business performance. CRM is often associated with utilizing information technology to implement relationship-marketing strategies. CRM, therefore, unites the potential of new technologies and new marketing thinking to deliver profitable, long-term relationships. In today's environment, when customers have varied options, successful CRM effectively manage customer relationships within a dynamic environment to ensure long-term relationships. CRM has been defined as: ''an e-commerce application'' (Khanna, 2001); ''a management approach that enables organizations to identify, attract and increase retention of profitable customers by managing relationships with them'' (Hobby, 1999); ''CRM is a business strategy combined with technology to effectively manage the complete customer life-cycle''(Smith, 2001); as ''data-driven marketing'' (Kutner & Cripps, 1997); and ''CRM is about the development and maintenance of long-term mutually beneficial relationships strategically with significant customers'' (Buttle, 2001). CRM can be seen as a term for methodologies, technologies, and e-commerce capabilities used by companies to manage customer relationships (Stone & Woodcock, 2001) and an application of one-to-one marketing and relationship marketing, responding to an individual customer based on feedback from customers and the information about customers (Peppers, Rogers, & Dorf, 1999).Whatever may be the approach, CRM tends to converge on the point of building strategic relationship for mutual benefits. The objective, for the organizations has been to build organization processes to ensure customer value. Customer value is a strategic weapon in attracting and retaining customers and has become one of the most significant factors in the success of both manufacturing businesses and service providers (Gale, 1994; Zeithaml, 1988; Zeithaml et al., 1996; Woodruff, 1997; Parasuraman, 1997). Delivering superior customer value has become one of the sole objectives for relationship marketing concepts.

### 4.3 Knowledge Management and CRM

The origins of CRM can be traced back to the management concept relationship marketing (RM), with Levitt (1983) being one of the first to propose a systematic approach for the development of buyer-seller relationships. Relationship marketing is defined as an integrated effort to identify, maintain, and build up a network with individual customers and to continuously strengthen the network for the mutual benefit of both sides through interactive, individualized and value-added contacts over a long period of time (Shani and Chalasani, 1992). However, CRM is largely strategic and as such, lacks a holistic view of the business processes connected to it, although business processes are regarded as important (Parvatiyar and Sheth, 2000).

The concepts of customer relationship management (CRM) and knowledge management (KM) both focus on allocating resources to supportive business activities in order to gain competitive advantages. The concepts of customer relationship management (CRM) and knowledge management (KM) have recently gained wide attention in business as they exhibits customer behaviors over a long period. Both approaches focus on allocating resources to supportive business activities in order to gain competitive advantages. CRM focuses on managing the relationship between a company and its current and prospective customer base as a key to success, while KM recognizes the knowledge available to a company as a major success factor. From a business process, manager's perspective both the CRM and KM approaches promise a positive impact on cost structures and revenue streams in return for the allocation of resources. It is sometimes argued that benefits of using CRM and KM can be enhanced and the risk of failure reduced by integrating both approaches into a customer knowledge management base. KM manages knowledge aspects with respect to content, competence, collaboration and composition. To build good relationships with customers, it is necessary to serve each customer in his preferred way, therefore requiring the management of ''customer knowledge'' (Davenport et al., 2001).

Knowledge in customer-oriented processes indicates increased competition and decreasing customer loyalty, which has led to the emergence of concepts that focus on the nurturing of customer relationships. Customer relationship management (CRM) emerged as an amalgamation of different management and information system approaches, in particular relationship marketing and technology-oriented approaches such as computer aided selling (CAS) and sales force automation (SFA). Shaw (1999) defined CRM as an interactive process that achieves an optimum balance between corporate investments and the satisfaction of customer needs to generate the maximum profits. To integrate marketing, sales, and service activities, CRM requires the strong integration of business processes which involve customers. These customer-oriented CRM processes are mostly unstructured and non-transactional, and their performance is predominantly influenced by the underlying supply of knowledge on products, markets, and customers (Day, 2000; Schulze et al., 2000; Garcia-Murillo and Annabi, 2002). CRM processes can therefore be considered knowledge-oriented processes with the following, strongly correlated, characteristics (Eppler et al., 1999) of Knowledge intensity.

In order to integrate the process of knowledge management, the entire CRM process requires Knowledge of customers to satisfy customers' knowledge needs involving knowledge about products, markets and suppliers (Garcia-Murillo and Annabi, 2002). This acquired knowledge is accumulated to understand customers' motivations and to address them in a personalized way, which includes customer histories, connections, requirements, expectations, and their purchasing activity (Day, 2000; Davenport et al., 2001). This acquired knowledge is then used for continuous improvement, e.g. service improvements or new product developments (Garcia-Murillo and Annabi, 2002). Managing these different knowledge flows is one of the most important challenges of CRM. To identify relevant knowledge that is required in business processes, business process engineering methods can be used (Harrington, 1991; Davenport, 1993; Hammer and Champy, 1993). These reengineering projects are often carried out to integrate different CRM processes, and provide the basis of an analysis of knowledge flows. Therefore, management of knowledge in CRM processes is a critical success factor. A CRM process model could therefore be used as starting point for an analysis and improvement of knowledge flows.

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A review of knowledge management models (Drucker, 1999) and others speak of knowledge as ''the most important resource of the twenty first century''. To determine what kind and how much knowledge a business process requires for a top performance should be the first step in a supportive knowledge management approach (Demarest, 1997). The steady interest in knowledge management in academia and business circles alike has spawned many KM models that try to capture the inherent qualities as well as the dissemination and development characteristics of knowledge in order to assess the methods and techniques of managing this resource in a business environment. While many knowledge management models offer valuable insights into the nature of knowledge, their difficulties with justifying the management of knowledge within the business environment, e.g. attaching a value to specific knowledge resources and providing guidelines concerning its use, is a point of constant criticism (Davenport and Marchand, 2001; Donahue, 2001).

Knowledge management is a support process and due to the pervasive nature of knowledge, any business process can be transformed into a ''knowledge management process'', if defined by activities such as knowledge creation, knowledge dissemination and knowledge use. While knowledge has become more important to all business processes, it is still a resource that abides by the laws of economics: it has a diminishing marginal utility and normally its management does not directly generate business value. A change in the alignment of the KM models is required to actually tap the supportive performance of managing knowledge in a CRM environment.

(Schmid, 2001) proposed a process model, which describes business processes relevant for knowledge management and helping to improve CRM performance. A CRM business process involves the processing of customer knowledge to pursue the goals of CRM. Usually it also involves direct customer contact and the exchange of information or services between the enterprise and a customer. Such processes are either triggered by a customer (with the aim of receiving information or services), who involves a transfer of information from the customer to the enterprise, or are triggered by the enterprise with the aim of delivering information or services to customers. The entire process is based on the concept of relationship marketing and is based on interactive, individualized contacts (Gronnroos, 1994). In addition to CRM business processes, CRM requires activities to design interfaces to customers at customer interaction points, which can be through various interactive channels between the organization and the customers. The current techniques used for communication channels are interactive voice response (IVR), the World Wide Web (WWW), or a mix of various channels (Senger et al., 2002). The objective is to increase the quality and value of interactions, while simultaneously decreasing the cost of interactions. Knowledge is thus created, located and captured, disseminated, modified and constantly used within all CRM business processes. The knowledge collected is analyzed, is generally implicit, highly volatile, and context sensitive and is constantly reflected. Managing this knowledge is therefore important and can be effectively used in enhancing the interactions between organizations and customers.

In practice, KM acts as a service provider for CRM and customer relationship management and knowledge management shows considerable synergies. The subjoining of knowledge management elements allows CRM to expand from its mechanistic, technology-driven and data-oriented approach, enabling it to encompass technological and people-orientation elements. Knowledge management is therefore a valuable ling in the CRM chain.

As described before, CRM manages knowledge for, from and about customers. Knowledge for customers is mainly generated in processes within the enterprise, such as in research, development, and production. CRM manages knowledge transparency and dissemination of knowledge to customers. Knowledge from customers can be captured in the same ways as knowledge about customers. Gaining knowledge from customers is because customers gain their own expertise while using a product or service, and that they can be regarded as equal partners when discussing changes or improvements. While, valuable knowledge from customers is mostly gained at service points, an enterprise has to analyze its CRM processes concerning their ability to serve customers. Merely collection of the large amount of data only shall be distracting CRM from its original service goal, but also shall be detrimental in providing ultimate goals of CRM

### 4.4 Satisfaction and Dissatisfaction

Satisfaction is conceived as a function of the customer's expectations prior to a purchase and perceptions of performance after a purchase (cf. Oliver, 1996). Satisfaction is therefore sometimes linked to the familiarity of the situations and is anchored in expectations and performance perceptions. Service provides does not produce at a constant performance level and it is assumed that services are subject to a certain amount of variability (cf. e.g. Rust et al., 1996). Consequently, performance levels are sometimes better than normal and sometimes worse than normal. Furthermore, the experienced customer is likely to have been subject to a) more high performance events and b) more low performance events than the less experienced customer is and their expectations are adjusted as they are faced with empirical evidence (Oliver, 1996). The perhaps most intuitive pattern is that the satisfied customer shifts expectations upwards, and that the dissatisfied customer shifts expectations downwards. This pattern is suggested by (Anderson & Sullivan, 1993). This view implies that the customer is subject to a cognitive process continuously, which emphasizes the avoidance of disequilibrium in the future. However, (Clow et al., 1998) offer an alternative view, which suggest that customers generally want to justify why they were satisfied or dissatisfied with a particular service experience. Thus, with this view, it is implicitly assumed that the customer wants to obtain cognitive equilibrium with regard to what has already happened. Clow et al also suggest that expectations are easier to reformulate ex post than performance perceptions. Because customers cannot easily modify their performance perception of the service they received, they are likely to modify what they expected prior to the purchase/consumption so that the expectations support the feeling of dissatisfaction or satisfaction. A dissatisfied customer who wishes to justify his/her dissatisfaction, the prior expectations have to be higher than the performance perceptions. Therefore, in the dissatisfied customer case, it is assumed by (Clow et al., 1998) that, in retrospect, the customer shifts the level of prior expectations upwards. In contrast, in order to justify his/her satisfaction, the satisfied customer needs to justify prior expectations downwards – since satisfaction is assumed to occur when expectations are lower than performance perceptions. When the service provider is about to be faced again, i.e. when a repurchase is to take place, this implies that the dis-satisfied customer approaches the new encounter with elevated expectations, while the satisfied customer approaches the new encounter with downgraded expectations. With regard to satisfaction, it is often viewed as a function of expectations (E) prior to a purchase and performance perceptions (P) after the purchase/consumption. Greater the P-E gap, the higher the level of satisfaction.

Satisfaction is "strongly influenced by customer expectations" (Rust, Zahorik, and Keiningham, 1994). Satisfaction is a person's feelings of pleasure or disappointment resulting from comparing a product's perceived performance (or outcome) in relation to his or her expectations (Kotler, 2000). Satisfaction is viewed as a function of perceived performance and expectations. It clears that if the performance falls short of expectations, the customer is dissatisfied, and if the performance matches the expectations, the customer is highly satisfied or delighted. Consumer behavioral studies show that customers who are just satisfied still find it easy to switch when a better offer comes along. Those who are highly satisfied are much less ready to switch. High satisfaction or delight creates an emotional bond with the brand, not just a rational preference. The result is high customer loyalty. It is within this premise that many companies are aiming for high satisfaction.

Customer satisfaction is critical to the application of marketing concept. Many company mission statements and marketing plans are designed around the goal of increasing customer satisfaction (Fournier and Mick, 1999). Customer satisfaction can be defined as "the extent to which a product's perceived performance in delivering value matches a buyer's expectations" (Armstrong and Kotler, 2003). In implementing CRM, a firm seeks to establish and maintain a long-term relationship with customers based on cumulative full customer satisfaction as opposed to a mere transaction-specific customer satisfaction (Garbarino and Johnson, 1999; Reinartz and Kumar, 2002). More specifically, successful CRM implementation requires a dedicated company-wide focus on key customers in one-to-one marketing efforts to fully understand and satisfy their needs and wants on an ongoing basis (Sheth, Sisodia, and Sharma 2000). The organization structure should be combed around the customers with dedicated teams (Sheth and Sisodia 2002) designed to create fully satisfying customer experiences (Ahmed and Rafiq 2003). By making creative use of the customer knowledge acquired and by leveraging CRM-based technology, an organization can provide customized offerings to its valued customers, which should boost customer satisfaction (Anderson and Srinivasan 2003; Johnson and Selnes 2004). Successful CRM activities must cultivate customer satisfaction (e.g., Stefanou, Sarmaniotis, and Stafyla 2003) by continuously adapting to the evolving needs and wants of customers (Stringfellow, Nie, and Bowen 2004). Babin and Griffin (1998) defined, 'satisfaction is one of only a few key building blocks in marketing philosophy, theory, and practice'. In spite of the exalted status of customer satisfaction, the usefulness of satisfaction in building and maintaining sustainable competitive advantage is sometimes overemphasized. Some critiques have argued that the role of customer satisfaction should be de-emphasized in marketing research and practices (Hofmeyr and Rice, 2000; Gitomer, 1998; Reichheld, 1996). Customer satisfaction has become an important focus of corporate strategy. Often, it is deliberated if the higher customer satisfaction would lead to improved company performance. Anderson, Fornell, and Lehmann (1994, p. 63) analyzed this paradox and in literature have confirmed that "companies that actually achieve high customer satisfaction also enjoy superior economic returns." Thus, many companies have implemented programs for measuring and improving customer satisfaction with a view to improve their company's performance. (Anderson, Fornell, and Rust 1997; Reichheld and Sasser, 1990; Rust and Zahorik 1993) confirmed this notion that there is a positive relationship between customer satisfaction and financial performance.

Customer satisfaction has traditionally been regarded as a fundamental determinant of long-term consumer behavior (Oliver 1980; Yi 1990). Much of the research on customer satisfaction and customers' actual behavior has focused on the relationship between satisfaction and ability of the firm to retain them. (Reichheld 1993, 1996; Reichheld and Kenny, 1991; Reichheld, Markey, and Hopton, 2000; Reichheld and Sasser, 1990). Capraro, Broniarczyk, and Srivastava (2003, p. 164) had identified customer retention as a key driver of firm profitability and that "most company's programs are directed to control customer defections and management of customer satisfaction." Many studies have linked customer satisfaction to purchase behavior (Anderson and Sullivan, 1993; Bolton 1998; Jones and Sasser, 1995; LaBarbera and Mazursky, 1983; Loveman, 1998; Mittal and Kamakura, 2001; Newman and Werbel, 1973; Rust and Zahorik, 1993; Sambandam and Lord, 1995). Furthermore, the majority of researchers attempting to conceptualize and operationally the chain of effects from satisfaction to profits have proposed models that link satisfaction to retention of customer and further, their retention to profits (e.g., Anderson and Mittal, 2000; Heskett et al., 1994; Rust, Zahorik, and Keiningham, 1995; Zeithaml, Berry, and Parasuraman, 1996). Rust (2002) explained, "Customer satisfaction and delight have a tremendous impact on customer retention and customer loyalty, and results in retaining customer for longer duration.

(Carroll, 1991–92; Carroll and Rose, 1993; Coyles and Gokey, 2002; Gupta and Lehmann, 2005; Keiningham, Vavra, et al., 2005; Reinartz and Kumar 2000, 2002) argued if the customer retention has any bearing with firm profitability, which gave to the issue of loyalty of the customer with the firm. (Keiningham, Aksoy, et al., 2005; Uncles, Dowling, and Hammond, 2003) researched on the measurement of loyalty and found that increase in the customer loyalty efforts helps improve customers' share of spending and is a consequence to customer retention efforts.

### 4.5 Loyalty and CRM

Customer loyalty is the major concern today for organizations and is a critical issue for sustainability in today's competitive market place (Wei & Chiu, 2002). One of the challenges faced today by the companies other than increasing the sales of products, reduction of marketing cost and other marketing variables, is to minimize customer defection. This is because loyal customers' tend to produce greater cash flow and profits; and they are less sensitive to price increases, they generate positive word of mouth messages and they do not have an acquisition cost (Reichheld, 1996; Ng & Liu, 2000). One of the primary goals of CRM is customer retention or customer loyalty (Anderson and Srinivasan, 2003; Aspinall, Nancarrow, and Stone, 2001; Verhoef, 2003). IT and web enabled technology today are enabling organizations to more efficiently and effectively direct their CRM efforts at retaining customers (Butler, 2000). By making skillful use of customer knowledge gathered over a series of interactions or touch points and applying CRM-based technology, companies can more effectively respond to the changing needs of customers with customized offerings. This personalization of products and services serves to further lock customers into long-term relationships by adding to customer switching costs (Burnham, Frels, and Mahajan, 2003; Vandermerwe, 2004). Furthermore, by organizing their CRM operations around customer groups, companies can assign direct accountability, keep abreast of changing customer expectations for different segments, and obtain early warnings from customers who may be on the verge of leaving. With this CRM knowledge network, timely remedial actions can be taken to address the specific problems or expectations of discontent customers, thereby increasing the retention rate. This also tends to recognize the efforts of the people in the organization who focus on customer satisfaction and customer loyalty (Johnson, 2004). Overall, a variety of CRM activities can work together to enhance customer retention (Pfeifer and Farris, 2004).

In several models of customer retention, satisfaction has been explored as a key determinant in customers' decisions to continue or terminate a business relationship (e.g., Bolton, 1998; Rust, Zahorik, and Keiningham, 1995). In fact, (Reichheld, 1996) finds that satisfaction measures very high in models of customer retention. High levels of customer satisfaction generally are considered essential to customer retention. Kotler expresses it succinctly: "The higher the customer satisfaction, the higher the retention" (2003). (Fornell et al., 1996; Mittal and Kamakura, 2001) emphasized the influence of customer satisfaction on loyalty. Loyalty is an outcome of the drive of relationship commitment. (Bendapudi and Berry, 1997; Morgan and Hunt, 1994). The two dimension of this commitment is affective commitment and calculative, or continuance, commitment (Fullerton, 2003; Hansen, Sandvik, and Selnes, 2003; Johnson et al., 2001). Drawing on the organizational behavior literature (Meyer and Allen, 1997), marketing scholars have defined commitment as a desire to maintain a relationship (Moorman, Deshpandé, and Zaltman 1993; Morgan and Hunt, 1994), a pledge of continuity between parties (Dwyer, Schurr, and Oh, 1987), the sacrifice or potential for sacrifice if a relationship ends (Anderson and Weitz, 1992), and the absence of competitive offerings (Gundlach, Achrol, and Mentzer, 1995). These various sources create a bonding, which keeps customers loyal to a firm even with low satisfaction. Loyalty is often interpreted as actual retention, which is a cornerstone of customer relationship management. Effective CRM strategies vary considerably depending on which factors are driving retention. If customer satisfaction is the primary driver of retention, a firm should improve product or service quality or offer better prices. If affective or calculative commitment is more important, a firm should either build more direct relationships with customers or build switching barriers in relation to competitors. With the intentions of affective commitment, (Garbarino and Johnson, 1999; Morgan and Hunt, 1994) concluded that this type of commitment affects customer retention positively and is reflected in the positive behavior such as purchase intentions, and usually affects customer loyalty.

The concept of customer loyalty often builds up long-term customer relationships. The advantage of building such loyal relationship is to increase companies' profitability as loyalty brings about low transaction costs, reduced price sensitivity and increase recommendations thru WOM. The two main strategies to achieve customer loyalty are to enroll the customer into long-term relationships and ensuring sustained customer satisfaction. Customer satisfaction is characterized by trust and being treated well in the future and it is customer's overall evaluation of the performance of an offering to date (Johnson and Fornell, 1991). This overall satisfaction has a strong positive effect on customer loyalty intentions across a wide range of product and service categories (Fornell 1992; Fornell et al., 1996). Satisfaction typically mediates the effects of product quality, service quality, and price or payment equity on loyalty (Bolton and Lemon, 1999; Fornell et al., 1996). It also contains a significant affective component, which is created through repeated product or service usage (Oliver, 1999). In a service context, overall satisfaction is similar to overall evaluations of service quality. Compared with more episodic or transaction-specific measures of performance, overall evaluations are more likely to influence the customer behaviors that help a firm, such as positive word of mouth and repurchase (Boulding et al., 1993).

Historically, satisfaction has been used to explain loyalty as behavioral intentions (e.g., the likelihood of repurchasing and recommending). Loyalty is defined by Schiffman et al. as 'the commitment of a consumer to a product or service, measured by repeat purchase or attitudinal commitment'. Loyalty can exist in two forms: behavioral and attitudinal. Behavioral loyalty exists when a consumer repeatedly purchases a product or service, but does not necessarily have a favorable attitude to the brand. This may occur out of convenience, habit or because the barriers to change are too great. The second area of loyalty is attitudinal loyalty. (Jacoby and Chestnut) defined as 'The consumer's predisposition towards a brand as a function of psychological processes. This includes attitudinal preference and commitment towards the brand.'

### 4.6 Customer Value and CRM performance

Customer value is a strategic weapon in attracting and retaining customers and has become one of the most significant factors in the success of both manufacturing businesses and service providers (Gale, 1994; Zeithaml, 1988; Zeithaml et al., 1996; Woodruff, 1997; Parasuraman, 1997). Delivering superior customer value has become an ongoing concern in building and sustaining competitive advantage by driving customer relationship management (CRM) performance. As many researchers have suggested, companies should reorient their operations towards the creation and delivery of superior customer value if they are to improve their CRM performance (Jensen, 2001; Day, 1994; Slater, 1997). Although there is a significant body of knowledge about the concept of customer value and its relationships with service quality and customer satisfaction, there has been relatively little empirical research on the subject. (Sheth et al., 1991; Sweeney and Soutar, 2001) considered price to be the only sacrifice of customers in measuring customer value, however, other sacrifices such as opportunity cost, psychological cost, and maintenance and learning cost) can exert determining influences on the perception of customer value besides "price" (Woodruff, 1997; Slater, 1997; Day, 1994).

With more companies practicing CRM, evaluation of its performance has posed a significance challenge. The question to emphasize one dimension of CRM performance while ignoring others, makes it much more difficult for managers to make a deep understanding of the practical implications of different performance. In practice, the delivery of superior customer value can involve significant costs for companies and these costs sometimes could outweigh the potential financial benefits. In other words, although companies often acknowledge that superior customer value can lead to higher profits, they may be afraid to practice because of a concern that significant costs may reduce profits. It is, therefore, imperative that companies understand the effects of each dimension of customer value and allocate their limited resources accordingly.

Driven by demanding customers, keen competition, and rapid technological change, many companies have sought to deliver superior customer value (Band, 1991; Day, 1994; Gale, 1994; Naumann, 1995; Butz and Goodstein, 1996; Woodruff, 1997). Delivering superior customer value is now recognized as one of the most important factors for the success of any firm now and in the future because it has a significant impact on the behavioral intentions of customers and because it has an important role in providing managers with insights into how to achieve superior CRM performance

Although the significance of customer value is widely recognized, research about customer value is quite fragmented and there is no clear definition of the concept. Early studies on the profit impact of market strategies argued that value is determined by product quality, relative price, and customer expectations. (Zeithaml, 1988) considered value to be the customer's overall assessment of the utility of a product based on the perception of what is received and what is given. (Dodds et al., 1991) argued that buyers' perceptions of value represent a trade-off between the quality and benefits they receive in the product and the sacrifice they perceive in paying the price. (Gale, 1994) considered value to be market perceived quality adjusted for relative product price. (Butz and Goodstein, 1996) defined it as the emotional bond established between a customer and a producer after the customer has used a salient product or service produced by that supplier. (Woodruff, 1997) defined customer value as a customer-perceived preference for, and evaluation of, product attributes, attribute performances, and consequences in terms of the customer's goals and purposes. Although these approaches differ, it is clear that there are some areas of consensus among the different concepts.

Market power is growing, but the market infrastructure has not yet been well-developed (Peng and Health, 1996) and the application of customer value knowledge and CRM is therefore rather limited. However, in a transitional economy, companies that have a deep understanding of the key dimensions of customer value and their influences on different aspects of CRM performance are more likely to build up sustained differential advantages and accordingly, superior firm performance.

With the increasingly intense business competition and the strong trend of globalization, the role of the customer has changed from that of a mere consumer to a multi-faceted role as consumer, co-operator, co-producer, co-creator of value, and co-developer of knowledge and competencies, which implies a much more important position of the customer than ever. As a result, functional value, social value, emotional value, and customer perceived sacrifices are perceived as the key dimensions of customer value. On the other hand, CRM performance is depicted in terms of both tangible aspects and intangible aspects. For the former, emphasis is given to the possible customer behaviors such as customer retention (relationship length), cross buying/ repurchase (relationship depth and breadth), word of mouth, and so on, which are visible themselves with the potential to produce such tangible benefit as profit and are considered to be the ultimate focus of CRM performance. In practice, it is such customer behaviors that constitute the underlying value of customers for a firm and provide the revenue streams expected from establishing and maintaining profitable customer relationships. These customer behaviors are based on so called "relationship quality" (Crosby et al., 1990; Dorsch et al., 1998).

Customer value is inherent in (or linked to) the use of certain products or services, and customer value is perceived by customers (rather than being objectively determined by sellers or other stakeholders). Moreover, these perception processes typically involve a trade-off between what customers receive (such as quality, benefits, and utilities) and what they sacrifice (such as price, opportunity cost, and maintenance and learning cost).

Majority of researchers have defined customer value in terms of get (benefit) and give (sacrifice) components (Woodruff, 1997; Slater, 1997; Day, 1994) – in contrast to those researchers who have argued that perceived value consists only of benefits (Hamel and Prahalad, 1994). (Woodruff, 1997), posits that customer value is derived from the perception, preference, and evaluation of customers, and that any consideration of customer value should take account of these factors.

Traditionally, customer value has been understood in terms of quality and price. (Sweeney and Soutar, 2001) had indicated, that it is imperative that companies enquire about other factors that might constitute perceived benefits and sacrifices, and the managerial implications of these factors, if they are to understand the perception and evaluation process of customers and reconfigure their resources and activities accordingly. (Kotler, 1997) argued that customer value could be understood in terms of product value, service value, employee value, and image value.

(Sweeney and Soutar, 2001) suggested that in the creation and delivery of superior customer value, the effective management of customer relationship is very important in the increasingly intense competition of this industry. For achieving the same, sacrifices other than price were considered. The term "sacrifice" refers to what is given up to acquire or consume a product or service. This includes non-monetary factors such as time, effort or energy (Heskett et al., 1997; Zeithaml, 1988), which may play an even more important role than price. So it has been expected to extend the price dimension and consider both monetary costs and non-monetary costs as two important elements of customer sacrifices instead of price only.

### 4.7 IT and CRM

Advances in IT have reshaped all aspects of marketing, but impacts on buyer–seller relationships in business markets are especially dramatic. At one extreme, some customer companies use Internet procurement hubs and reverse auctions to increase competition among sellers and help drive down procurement costs (Jap 2003). In other markets, sellers and their customers rely on technology to share information seamlessly and support operational linkages that are part of a close, cooperative, and continuing relationship (Cannon and Perreault 1999). Recent research has shown that companies realize better financial returns by pursuing revenue expansion strategies (Rust, Moorman, and Dickson 2002). However, to implement such strategies within an organization, companies are using IT platform to improve relationship-building performance with customers. Customer relationship management has been so pervasive that it has evolved both as a business philosophy and as a technology (Johnston and Marshall 2006). (Srivastava, Shervani, and Fahey, 1999) view CRM as one of three core macro level business processes and define it as "all aspects of identifying customers, creating customer knowledge, building customer relationships, and shaping their perspectives of the organization and its products." Others use the term CRM to refer to "the use of technology to manage customer interactions and transactions" (Zoltners, Sinha, and Zoltners, 2001), which explicitly recognizes technology's importance to CRM processes. However, technologies alone often cannot perform the CRM business process that Srivastava, Shervani, and Fahey describe; yet people often use technological tools to implement the CRM business process.

Customer relationship management (CRM) can be thought of as IT-enabled relationship marketing. It has numerous definitions and perspectives, and success of implementation has been limited to date. Literature on the subject gives importance of a balance between strategy formulation, IT and organizational alignment when adopting and implementing CRM in a business environment. Customer relationship management (CRM) has emerged in recent years as the convergence of a number of factors. (Berry, 1983) coined the term 'relationship marketing', which encouraged a new movement towards customer relationships rather than customer transactions (Christopher, Payne & Ballantyne, 1991). (Peppers and Rogers, 1993) promoted the concept of one-to-one marketing and of mass customization, and (Reichheld, 1996) further motivated companies with his research on loyalty and empirical evidence of the profitability of customer retention. Customer lifetime value (CLV) has become a key element of CRM. Largely since the early 1990s major performance/price improvements in the speed of processing and size of computer storage, developments in client-server technology, databases and data warehouses, communications technology, and the rapid spread of computer literacy, Internet connectivity and eCommerce into the consumer arena have facilitated the wide application of these ideas. (Chen & Chen, 2004; Cosgrove Ware, 2003; Rigby, Reichheld & Schefter, 2002; Zablah, Bellenger & Johnston, 2004a & b) made varied forecast on CRM successes but research mentions the many failures and unmet expectations of CRM (Gartner Group, 2003; Kale, 2004; Nairn, 2002; Roberts, Liu & Hazard, 2005; Yu, 2001)

One major problem is the lack of a common conceptualization of CRM (Bull, 2003; McKim, 2002; Payne & Frow, 2004; Sin, Tse & Yim, 2005; Zablah et al., 2004a). Greenberg (2001: 4) notes '[CRM]...isn't a technology. A literature review by (Zablah et al., 2004a) 'yielded approximately 45 distinct definitions of CRM'. An aspect that has caused confusion, and been oversold by enthusiastic vendors, is the role of information systems or IT in CRM. By using IT effectively, CRM extends the range and reach of relationship marketing (Goodhue, Wixom & Watson, 2002). Technology is but one of the drivers of success, and a necessary but not sufficient component in the current corporate environment (Kale, 2004; Roberts et al., 2005). (Ryals and Knox, 2001) state 'IT is the glue' that holds together the philosophical bases of a relationship From the research point of view, CRM is a young and immature field, with little strong empirical research to date (Mithas, Krishnan & Fornell, 2005). A review of all CRM literature up to 2001 (Romano & Fjermestad, 2002) found that a cumulative tradition had hardly emerged, with fewer journal articles than conference proceedings and little theoretical development. Literature to end-2002 was summarized by (Ngai, 2005), and to end-2004 by (Paulissen, Milis and Brengman, 2005), who found that adoption, acquisition and use of CRM had received good attention, but suggested more could be published on the implementation of CRM. Empirical validation of the impact, benefits and performance of CRM includes work by

(Chen and Ching, 2004; Jayachandran, Sharma, Kaufman and Raman, 2005; Mithas et al., 2005; Reinartz, Krafft and Hoyer, 2004; and Verhoef, 2003).

CRM performance should be measured in terms of customer behaviors since they are the underlying sources of value of current customers of a firm and have the potential to increase the future revenue streams associated with them and those prospective customers. Because the fundamental objective of CRM is to ensure steady streams of revenue and maximization of customer lifetime value or customer equity, customer behaviors that might bring revenue streams become strategically significant (Grant and Schlesinger, 1995; Bolton et al., 2002). Arguments about customer retention, intensity, or usage level of services or products over time, cross-buying or add-on purchase, and word of mouth have been put forward by (Blattberg et al., 2001; Reichheld and Teal, 1996; Bettencourt, 1997) and its deliberations on fundamental increment of customer lifetime value or customer equity. Studies have indicated that superior customer value, as perceived by customers, has a significant influence on the purchasing and repurchasing intentions of customers and their decisions to retain a close relationship with a firm. (Mazumdar, 1993) concluded that customers are becoming more value-oriented and are not simply influenced by high quality or lower price. Rather, they tend to make a reasonable trade-off between the perceived benefits and perceived sacrifices in the process of obtaining and consuming products or services. However, not all the customers value the same potential benefits and care for the same sacrifices at any given time. (Reichheld and Teal, 1996; Szymanski and Henard, 2001; Bolton, 1998; Mittal and Kamakura, 2001) though observed that customer behaviors are also influenced by factors such as customer satisfaction and that customer value has significant influence on customer satisfaction.

The question is sometimes raised whether IT synergies improve the corporate performance. IT is a strategic organizational resource (Wade and Hulland, 2004). Organizations are under constant pressure to reduce costs and increase the value of their company's IT resources. Common IT Strategy-Making Processes as a Source of Cross-Unit Synergy Coordinated business strategies create synergy because they enable a firm to take joint actions and minimize competition among its business units (Campbell and Goold, 1998). Since the alignment of business and IT strategies is important for firm performance (Henderson and Venkatraman, 1993; Sabherwal and Chan, 2001), coordinated business strategies imply coordinated IT strategies. However, it is challenging to coordinate IT strategies due to the conflicting objectives of the corporate center and the business units (Brown 1999; Brown and Magill, 1998; Sambamurthy and Zmud 1999). While the center seeks to maximize corporate performance, business units seek to maximize their own performances. Using a common IT strategy is not appropriate because it can inhibit autonomy and reduce the performance of individual business units (Sawhney, 2001). Using a unique IT strategy in each business unit is not appropriate either because it fosters independent actions and minimizes the company's chances of creating cross-unit IT synergy. Milgrom and Roberts, 1995) argue that companies can substantially ease such cross-unit coordination problems by providing a general strategic direction to the business units rather than trying to coordinate the contents of their strategic decisions. The use of a common IT strategy-making process can provide the general strategic direction needed for coordinating IT strategies of business units. A common IT strategy-making process embeds guidelines reflecting the company's prior experiences, learning, deep-rooted beliefs, attitudes, and preferences about strategic IT issues such as the formulation of IT strategy (Segars and Grover, 1998), alignment of IT and business strategies (Henderson and Venkatraman, 1993), management of business unit and IT relations (Henderson, 1990), and IT investments (Weill and Broadbent, 1998). Whether and how IT contributes to firm performance, and whether or not there is business value in exploiting firm wide. Further, most information technologies and IT management practices are applicable across a wide range of businesses. While there is no apprehension that the firm performance and IT investments are complementary, but to conclusively prove this point needs empirical studies and cannot be concluded at this stage of the literature review

## 4.8 Strategic CRM Framework

CRM has been defined in a variety of different ways. For some, CRM is a way to identify, acquire, and retain customers. For others, it is a way of automating the front office functions of sales, marketing, and customer service. In whatever way, it is defined, at its core; CRM identifies methods and process, which can contribute to increased revenues, decreased costs, and ultimately to increase profits. Customer Knowledge is the necessary starting point for any CRM strategy. This emphasizes the importance of knowledge management for enhancing customer relationships. CRM literature suggests that the requisite market intelligence is generated through the effective execution of a knowledge management process (Campbell, 2003; Crosby & Johnson, 2001a; Fahey et al., 2001; Massey et al., 2001; Plakoyiannaki & Tzokas, 2002; Stefanou & Sarmaniotis, 2003) and that the resulting intelligence is utilized to build the profit maximizing portfolio of customer relationships by enabling companies to select the right customers, prioritize relationships, and productively manage interactions with them (Hansotia, 2002; Hirschowitz, 2001; Reinartz et al., 2003; Rigby et al.,2002). (Khanna, 2001) reiterates that ''a management approach shall enable organizations to identify, attract and increase retention of profitable customers by managing relationships with them'' (Hobby, 1999); ''CRM is a business strategy combined with technology to effectively manage the complete customer life-cycle''(Smith, 2001); as ''data-driven marketing'' (Kutner & Cripps, 1997); and ''CRM is about the development and maintenance of long-term mutually beneficial relationships strategically significant customers'' (Buttle, 2001). CRM can be seen as a term for methodologies, technologies, and Internet capabilities used by companies to manage customer relationships (Stone & Woodcock, 2001).

A company must begin to address its customers' needs and wants, and thereby offer value, unless it understands clearly, what these are. A key dimension of customer knowledge is profitability, since the underlying premise of the framework is that the ultimate objective of the strategy is increased profits. In addition to customer profitability, other knowledge that is needed relates to providing increased value to the targeted segments of profitable and potentially profitable customers. Business intelligence tools are used to derive information from customer data to provide understanding of customer behavior and preferences, in support of marketing and product/service development programs. These tools perform functions such as basic reporting, data mining, on-line analytical processing, and data visualization. Any CRM strategy shall highlight the linkages between specific CRM initiatives and desired outcomes. A CRM strategy for managing scope is critical because the number of CRM initiatives that a company can conceivably undertake invariably exceeds the number that it can successfully digest. CRM helps to sense ever more precisely the needs of customers, and to respond to those needs with highly targeted offerings and marketing messages.

The Strategic CRM Framework is based on fundamental concepts of dynamic customer expectations, their nature of relationship and how to keep them loyal and attached. Therefore, knowing of customers is the first step in managing the strategy, which is only known through the interaction with the customers and then designing a framework from business's efficiency and convenience to customer-centric interactions for the customer's efficiency and convenience. Information captured includes customers' demographic and psychographic data, buying and service histories, preferences, complaints, and all other communications with the company. The sources can either be internal through customers' interactions with different parts of the extended enterprise (e.g. distributors, sales, service), using different communications channels (in-person, telephone, e-mail, Web site, postal service mail, fax), or external (e.g. marketing data providers). Customer information also includes their responses to marketing and sales campaigns. The data thus collected should integrate with in the company processes. The data is used for two purposes: to create customer profiles, which shall include demographic characteristics, needs, wants, purchase patterns, channel preferences and behaviors of individual customers that can be used to tailor interactions with the customer, and to segment customers in order to develop appropriate products and services, as well as marketing, relationship and divestiture programs. Based on customer profiles, segmentation, segmentation beyond profitability then shall become mandatory. Business intelligence tools associated with data warehousing support segmentation of customers. This approach views CRM as a strategic set of processes or activities that commences with a detailed review of an organization's strategy and concludes with an improvement in business results. The notion that competitive advantage stems from the creation of value for the customer and for the company; this is the key to the success of any relationship. CRM activities for all companies will involve collecting and intelligently utilizing customer and other relevant data to build a superior customer experience in each touch point where the customer and supplier interact.

The customer relationship is fundamentally based on the exchange of value for money between two parties and shall continue until both the parties benefit from the relationships. In the new economy, as markets become more efficient and more competitive, the partner most willing to terminate the relationship is the one that has the most power, which is the customer today and therefore, the power is shifting to the hands of the customer. As products and services become commoditized, the value that will differentiate one company from another will be increasingly based on the customer's interaction experience with them. Therefore, CRM is the management of the capability to interact with the customer such that every interaction is positive and reinforces the relationship. This interaction is not limited to the niche markets anymore and needs to be brought down to the level of each customer relationship. The key to relationship management is for the company as a whole to respond to the customer in a way that shows regard for the customer as a distinct individual with a distinct set of needs and wants. This applies to all interactions in the "customer offering life cycle" - the customer's consideration, acquisition, utilization, maintenance, and disposition of the product or service offering. The basis of any customer relationship is the value that can be provided to the customer. Value is broadly interpreted as something that the customer appreciates in a positive way and can be a combination of quality, image, reliability and warranty associated with a brand, established through marketing programs; Quality of product or service offerings, Positive customer care experiences; and Loyalty programs rewards. . The premise here is that the company must relentlessly increase the value-add for the customer and continue to do so to keep abreast with the competition through innovation.

The more customer points are touches, better are the chances of developing loyal customers. Loyal customers are those that choose a company's product or service even though a reasonable competitive alternative exists compared to the captive customers that have no choice, either because no alternative exists to them of they are "locked-in" for some reason. The reason they choose a company is that it offers a superior value proposition, either in the produce or service itself, or in the interactions they experience in the customer offering life cycle, or both. For the company, both loyal and captive customers can be profitable. Customer relationship programs are those that are explicitly designed to enhance customer relationships, e.g. loyalty and customer recognition programs. Customer care programs are those that satisfy customer needs at all stages of the customer offering life cycle. The objective of such programs is to make it easy for the customer to interact with the company. However, the strategy needs to be verified and checked repeatedly to keep a tract of such customers.

A CRM strategy for a particular enterprise can be developed using the framework as a starting point. Framework is only a guiding tool of the entire process of the strategy; however, the other aspects like scope of work, process and execution of the same work in the same manner and involves the business stakeholders. The main impact of using the framework is that it provides a conceptual context for developing the strategy. The CRM strategy will be more specific and detailed than the framework. However, the type of mapping that is used in the framework can also be used in outlining the detailed strategy, which is then detailed and broken into the smaller sub-component of the strategy to arrive at the planned outcome. The CRM strategic map is developed iteratively, based on an initial understanding of the desired outcomes, the current environment, and what is to be done to meet the outcomes. Over the course of development of the map, as general discussion of strategy evolves, the outcomes, perceptions of the current environment, and the required initiatives, will evolve as well.

## 4.9 CRM as a Strategy

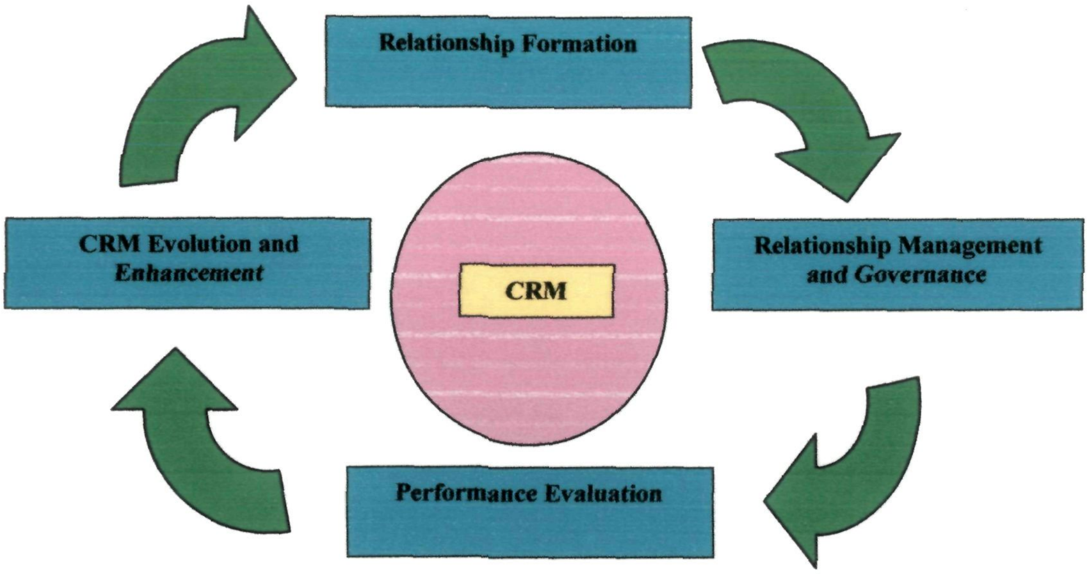
Strategy is defined as an ''overall plan for deploying resources to establish a favorable position'' (Grant, 1998). The strategic view of CRM emphasizes the fact that resources destined for relationship building and maintenance efforts should be allocated based on customers' lifetime value to the firm i.e., estimated net profits over the course of the relationship; (CRM Guru, 2003; IT Director. com, 2003; Kracklauer et al., 2001; Tan et al., 2002). More specifically, this view suggests that not all customers are equally valuable and that, therefore, maximum profitability can only be achieved when available resources are invested in customer relationships that provide a desired level of return (Ryals, 2003). The main implication stemming from the strategic perspective is that companies must continually assess and prioritize customers based on their expected lifetime value—if they are to build long-term, profitable customer relationships. When CRM is defines as a strategy, it also tends to emphasize that it enables companies to build the ''right'' type of relationship with each individual customer, which, in some instances, implies choosing not to build one at all (Kracklauer et al., 2001; Verhoef & Donkers, 2001). The focus of this view of CRM is not on how relationships are developed and maintained, but more so on how building the right type of relationships can have a substantial positive impact on corporate profitability. Hence, closely associated with this view of CRM is the notion that customer relationships should be treated as a portfolio of assets or investments that need to be actively managed to maximize profitability (Plakoyiannaki & Tzokas, 2002; Ryals, 2002, 2003; Ryals and Knox, 2001). While the application of portfolio theory to customer relationships predates the CRM era (e.g., Jackson, 1985), it is increasingly receiving attention in the CRM literature and is touted as a valuable tool for enabling companies to identify an optimal combination of customers in which to invest their limited resources (Turnbull et al., 1996). A good CRM strategy will take the business vision and apply it to the customer base by answering questions relating to the Products and services being offered now and shall be offered in the future, defining markets, and identification of customer groups which shall be most valuable to the organizations in terms of profitability and growth potential. The strategy shall also identify the products and services, which shall be demanded by these customers, and also relating them with the reliability and value of spend. It is the Endeavor of the good strategy to find ways for delivering the best value for their customers.

To answer these questions, business models for strategizing CRM are being developed. The purpose of the strategy is to focus on delivering superior customer value and to ensure that individual customers get attention they deserve. Companies are enhancing their images from a product-centered orientation to a relational orientation, i.e. customizing their products to suit the changing needs of the customers. What made the strategy "come alive," is the company's ability to "vary the value proposition" in systematic ways so as to categorize the customers into various segments.

Product life cycle is now being refined into the different approach looking at the future needs of existing customers and creating services that extend existing customer. The Customer life cycle approach is becoming more relational and giving away the concept of transactional marketing. The customer life cycle will focus on lengthening the life span of the customer with the organization rather than the endurance of a particular product. Customers have changing needs as their lifestyles alter - the development and provision of products or services that continuously seek to satisfy those needs is good CRM.

(Borys and Jemison 1989; Dwyer, Schurr and Oh 1987; Evans and Laskin 1994; Heide 1994; Wilson, 1995) studying buyer-seller relationships proposed relationship development process models. Building on that work, the broad framework suggests that CRM process comprise of the following four sub-processes, which are more dynamic in nature. This dynamic nature of the environment has led to the evolution of the adaptive enterprise, which effectively harnessed the full value of the relationship not only with the customer, but also with the back end suppliers and employees. At the core of these adaptive enterprises were the profitability and dealing with the most profitable customers. Through internal integration, these adaptive companies understood the competition, and eventually their customers, their habits, their preferences, their experiences with the company, and their ultimate value to the company. At the same time, the contest for customers, along with abundant customer choices, has pushed customer expectations to new heights. Expectation from a provider to deliver on time, with quality and to satisfy the needs of an impatient customer is a challenge today. Adding to the challenge, companies are providing more access points than ever before to reach and interact with customers. Not only do companies have more channels to manage and integrate, channels like the Internet have made it easier for customers to shop for the best service and deals, creating even more competition for the same customer base.

**Fig 4.1 CRM Evolution Framework**




Customers are now demanding round the clock accessibility so that the business could be done easily. In today's environment when customers are demanding more and more attention, the adoption of strategy becomes very critical. Many a times the conflict arises whether to implement the technology or not as cost of building the infrastructure necessary to get to know the customer will be greater than the value returned. However, it there is a burning desire in the organization to motivate such a change, and then CRM has a role in improving the business performance. The true value of CRM in building profitable relationships is dependent on understanding that it is an enterprise-level strategy that presents a unified company and experience to the customer. A disciplined approach is required towards the treatment of the customer necessitating significant investment to improve customer experience and thereby improving business performance.

It is believed that CRM performance should be measured ultimately in terms of customer Behaviors since they are the underlying sources of value of current customers of a firm and have the potential to increase the future revenue streams associated with them and those prospective customers. Because the fundamental objective of CRM is to ensure steady streams of revenue and maximization of customer lifetime value or customer equity, customer behaviors that might bring revenue streams become strategically significant (Grant and Schlesinger, 1995; Bolton et al., 2002). Many theoretical studies have indicated that superior customer value, as perceived by customers, has a significant influence on the purchasing and repurchasing intentions of customers and their decisions to retain a close relationship with a firm. According to the study of (Mazumdar, 1993), customers are becoming more value-oriented and are not simply influenced by high quality or lower price. Rather, they tend to make a reasonable trade-off between the perceived benefits and perceived sacrifices in the process of obtaining and consuming products or services.

The Strategic CRM Framework is very conceptual and very general. It focuses efforts on developing new channels versus customer care programs, and does not suggest any particular strategy. However, it does suggest the aligning and sequencing of the initiatives and also outlining the various elements of the strategy.

### 4.10 Satisfaction and Profitability

The basic premise of all marketing activity is to increase customer satisfaction and in return the company's bottom line or profitability. (Rust, Moorman and Dickson, 2002), identified this vague linkage and proposed that customer satisfaction influences profitability. They also suggested that was a follower relationship between customer satisfaction and profitability. In other words, past satisfaction has a positive effect on current profitability, and similarly, past profitability affects current satisfaction. (Anderson, Fornell and Lehmann, 1994; Yeung and Ennew, 2001) devised the conceptual framework to accommodate the possible mutually influential relationship between satisfaction and profitability. As one of the fundamental concepts in marketing, customer satisfaction has been extensively studied. Since it is a behavioral construct, most behavioral researchers have investigated customer satisfaction at the individual consumer level using a transaction-specific perspective. Such a perspective involves consumers' assessments of their interactions with a firm (or its products and services) on a specific occasion. However, consumers could also make satisfaction judgments based on their overall experience with a firm, which may be based on multiple transactions over a period of time. While investigating the link between customer satisfaction and the company's financial parameters, (Olsen and Johnson, 2003) suggested that .it makes more sense to consider consumers' satisfaction with a firm that is based on their overall experience and not their satisfaction based on any one transaction.

Several models have been suggested in the literature that suggest a link between customer satisfaction and profitability, e.g., the Service-Profit Chain model (Heskett, Sasser and Sclesinger, 1997; Kamakura *et al.*, 2002) which suggests that employee satisfaction leads to customer satisfaction, which leads to profitability or the Return on Quality model (Gustafsson and Johnson, 2002; Rust, Moorman and Dickson, 2002; Rust, Zahorik and Keiningham, 1995), which suggests that improvements in quality could lead to improved customer satisfaction, which leads to higher levels of customer loyalty, which can result in greater profitability for the firm. All these models suggest that the specific paths by which satisfaction contributes to the company's profitability is linked to their loyalty for repeat purchases of the companies products at more profitable prices (Reichheld and Sasser, 1990); spreading world of mouth publicity to acquire new customers (Howard and Sheth, 1969); reduction in cost linked to availability of good products and after sales services (Garvin, 1988). Although the above rationales are intuitively appealing, there is evidence to show that satisfied customers do not always engage in behaviors that are necessary for satisfaction to lead to profitability via the paths suggested above (Rust, Zahorik and Keiningham, 1994). It is interesting to note that profitability is a direct result of customer satisfaction arising from availability of good products and service, i.e., without the relationship being mediated by loyalty or word-of-mouth. Thus, while a satisfied customer is less likely to return the product, which is a benefit accruing to the firm, the option to exhibit the purchase/repeat purchase at higher prices are not likely to be opted. However, ass soon as the customer get involved with the purchases even at higher prices or buys products as a consequence to the WOM publicity, he/she turns into a loyal customer and the profitability that accrues to the firm is a direct result of customer loyalty. In spite of the fact that customer satisfaction and loyalty are positively related in many cases (Anderson, 1994; Bolton, 1998), a conceptual distinction is necessary for a clear understanding of the phenomenon.

(Yeung and Ennew, 2001), found that satisfaction does not always lead to loyalty. Anderson, Fornell and Lehmann (1994) found that customer satisfaction had a strong effect on profitability as measured by the company's return on investment. Further, they found that there was a strong immediate effect and a weaker carryover effect of customer satisfaction on a company's profitability, which implied that customer satisfaction in one period influenced profitability in that period and also in the next period. The rationale provided by Anderson, Fornell and Rust (1997) could explain the mixed evidence for a positive relationship between customer satisfaction and financial performance measures found by Yeung and Ennew (2001). Similarly, Standard and Poor's Compustat, found that the relationship between satisfaction and profitability varied from industry to industry, with positive relationships in some industries and no relationships in others. As the difference between customer desires and the company's offerings increase, the level of satisfaction with the company's offerings will decrease. Research (Anderson, Fornell and Lehmann, 1994; Griffin and Hauser, 1993; Fornell and Wernerfelt, 1987, 1988) has found that satisfaction and market share are negatively related simply because a given company's limited resources cannot maintain the same level of satisfaction achieved in a niche market when the firm makes inroads into other larger markets. Therefore, when companies focus on satisfaction, they pay more attention to product quality (Bolton and

Drew, 1991; Gustafsson and Johnson, 2002; Oliver and DeSarbo, 1988) and try to provide customer value through means other than low price alone (Fornell, 1992; Zeithaml, 1988; Garvin, 1988). Some of the studies indicate that higher levels of Customer satisfaction lead to greater customer loyalty (e.g., Anderson and Sullivan 1993; Bearden and Teel, 1983; Bolton and Drew, 1991a, b; Fornell, 1992; LaBarbera and Mazursky, 1983; Oliver, 1980; Oliver and Swan, 1989a, b), which in turn has a positive impact on profitability (Reichheld and Teal 1996). Other studies find that satisfied customers can increase profitability by providing new referrals through positive word of mouth (e.g., Mooradian and Olver, 1997).

Conversely, it is questioned whether profitability affects customer satisfaction? Companies can attempt to satisfy customers in various ways, e.g., adding features to a product, improving performance of a product on various attributes, offering more services to customers, or offering better quality services. It is obvious that companies have to incur costs to implement and maintain a customer satisfaction program (Caru and Cugini, 1999; Storbacks, Strandvik and Gronroos, 1994). Companies justify these costs by arguing that the potential benefits from the satisfaction program will far outweigh the costs associated with the program. (Anderson, Fornell and Lehmann, 1994) reported in their findings, that economic benefits from improving customer satisfaction are not immediately realized and a long-term perspective is needed to evaluate the efficacy of customer satisfaction programs.

In the literature, it has been reported that knowingly or unknowingly, companies very often adopt a short-term perspective. Evidence of this is found in the fact that the profitability measures used most often by managers for making business decisions tends to be short-term focused, like quarterly and annual net income (Hall, 2001). A consequence of adopting such a short-term earnings focus is that companies make decisions aimed at improving the current period bottom line, e.g., laying off employees or cutting back on resources allocated to programs to meet short-term earnings targets. The implication is that the resources allocated to customer satisfaction program could be influenced by the current profitability, but more so by the past profitability of the firm having impacted the profitability customer satisfaction link. In other words, when the company's profitability was down in the past year, resources allocated to customer satisfaction programs in the current year might be reduced, which in turn, would lead to lower levels of satisfaction. When the company's profitability was up, managers are more likely to make decisions that have resource allocation implications if they feel those decisions could lead to a more satisfied customer, e.g., meet customer requests for an unusual or atypical delivery schedule even though honoring this request could lower the profitability of this transaction. When the company's profitability was up, such a decision is likely to be justified on the basis of the long-term benefits that accrues by satisfying an important customer whereas when the company's profitability was down, the same request may either be turned down or the customer may be asked to bear all additional costs associated with that request even if it makes the customer unhappy. Due to organizational inertia and bureaucracy (Thompson, 1965), such drastic changes would lead to the change in momentum of the customer satisfaction programs even if the theory suggests that customer satisfaction is exogenous to profitability i.e., current profitability does not affect current satisfaction performance. Increased levels of customer satisfaction are expected to lead to higher levels of customer loyalty (e.g., Bolton and Drew, 1991).

Customer satisfaction has significant implications for the economic performance of companies (Bolton, Lemon, and Verhoef, 2004). Customer satisfaction has been found to have a negative impact on customer complaints and a positive impact on customer loyalty and usage behavior (Bolton, 1998; Fornell, 1992). Increased customer loyalty may increase usage levels (Bolton, Kannan, and Bramlett, 2000), secure future revenues (Rust, Moorman, and Dickson, 2002), and minimize the likelihood of customer defection (Anderson and Sullivan 1993; Mithas, Jones, and Mitchell, 2002). Customer satisfaction may also reduce costs related to warranties, complaints, defective goods, and field service costs (Fornell, 1992).

### 4.11 Loyalty and Profitability

Customer relationship management needs to differentiate the profitable and the unprofitable customers. Today, every Product & Services Provider wants to know if they are profitable or not and what and who contributes in this profitability. More and more organizations are now looking at the measures, which can makes up individual customer profitability and organizations, which are customer centric, are getting more conscious about the customer profitability. The performance of the organizations, which is measured in terms of profitability, is getting more centered around customer profitability, and thereby individual customers are getting more focused attention. CRM enables decision makers and customer service representatives to make the right decisions and take the right actions that build relationships and enhance profits. CRM based its concept from push tactics to a customer pull strategy. The foundation however of any strategy is an understanding of what drives customer profitability and as an exercise in addition what actually drives overall profitability.

The recent emphasis on CRM stems, in part, from the research of (Reichheld, 1996), which demonstrated that a strong link exists between customer loyalty and corporate profitability and the most effective way to achieve such loyalty is by proactively seeking to build and maintain long-term relationships with customers. The transaction between firm and its buyers are seen as an ongoing relationship (Piccoli et al., 2003; Shahnam, 2003) rather than each transaction in isolation. (Hasan, 2003; Shahnam, 2003) linked the same to the marketing concept, which stresses that companies must organize around and be responsive to their customers and their changing needs (Kohli & Jaworski, 1990; Narver & Slater, 1990). It recognizes, that in order for exchange relationships to last, selling companies must be able to continually deliver what their customers value — a feat that is best accomplished by those companies that boast a customer centric culture (Rigby et al., 2002; Wilson, Daniel, & McDonald, 2002). Moreover, this perspective effectively builds a bridge between the marketing concept and relationship and focuses on the importance of creating customer value, building long-term, sustainable profitable relationships, driven by an understanding of customers' evolving needs.

The relationship between customer loyalty and corporate profitability is widely documented. (Reichheld and Sasser, 1990) stated that the role of customers is essential in corporate performance as these enduring relationships with customers' increases profits. In addition, (Sheth and Parvatiyar, 1995) suggested that the cost of retaining customers is frequently much lower than the cost of acquiring new customers. On the similar pretext, (Reichheld, 1993) concluded that the economic benefits of customer loyalty are so important that this factor, on its own, explains performance differences among companies in many industries. Furthermore, Reichheld noted that enhanced organizational performance enables a company to invest more resources in motivating and improving its relationship with its employees, continuously ensuring customer retention.

Research in the field of relationship marketing has focused on the effect that employees' skill and behavior has on customer loyalty (Reichheld, 1996; Reynolds and Beatty, 1999). (Grönroos, 1990) advocated that it is the activities of the employees of the organization that connects companies to its customers. The aim of such activities is to maintain customer loyalty by fulfilling the promises made to the customer (Berry, 1995). These activities are a critical factor in developing effective working relationships with customers (Gwinner et al., 1998). The employees of an organization are therefore vital for ensuring success in this area, because they are the persons ultimately responsible for providing a quality service that meets the expectations of customers (Boulding et al., 1993; Parasuraman et al., 1991; Zeithaml et al., 1996). Their skills, their attitudes, and the equipment and other support available to them in providing the service, are all determinant precursors of customer loyalty (Reichheld, 1993; Bitner, 1995).

The literature pertaining to relationships among customer satisfaction, customer loyalty, and profitability, proposes that customer satisfaction influences customer loyalty, which in turn affects profitability. (Anderson and Fornell, 1994; Gummesson, 1993); Heskett *et al.*, 1990; Heskett *et al.*, 1994; Reicheld and Sasser, 1990; Rust, *et al.*, 1995; Schneider and Bowen, 1995; Storbacka *et al.*, 1994; and Zeithaml *et al.*, 1990) discuss the links between satisfaction, loyalty, and profitability. The literature argues that customer satisfaction is the result of a customer's perception of the value received in a transaction or relationship – where value equals perceived service quality relative to price and customer acquisition costs (Blanchard and Galloway, 1994; Heskett *et al.*, 1990) – relative to the value expected from transactions or relationships with competing vendors (Zeithaml *et al.*, 1990). Loyalty behaviors, including relationship continuance, increased scale or scope of relationship, and recommendation (word of mouth advertising) result from customers' beliefs that the quantity of value received from one supplier is greater than that available from other suppliers. Loyalty, in one or more of the forms noted above, creates increased profit through enhanced revenues, reduced costs to acquire customers, lower customer-price sensitivity, and decreased costs to serve customers familiar with a company's service delivery system (Reicheld and Sasser, 1990).

## 4.12 CRM measurement and its impact on business performance

One of the most significant challenges faced by organizations is that there is a correlation between CRM and business performance. The key question is to find out the parameters on which companies can enhance their efforts on CRM to have a better business performance. Business performance was measured by both objective and subjective measures in the previous researches. The majority of the subjective measures were based on those used by (Narver and Slater, 1990; and Slater and Narver, 1994), including relative return on assets (ROA), relative sales growth, and new product success. Some measures were adopted from (Jaworski and Kohli, 1993), such as overall business performance and overall relative performance. The last two performance criteria, customer retention and word of mouth, were adopted from (Kumar, Subramanian and Yauger, 1998). The subjective measures in this study asked respondents for their assessment of the company's by comparing outlet performance and thereby measuring company performance with that of major competitors in the past few year by rating on a 5 point scale ranging from "poor" to "excellence". (i.e., overall performance of the business in the past year; return on assets relative to your major competitors etc compared to the previous years). The interface between the customers and the company in this research is the Retail outlet and as the proposed research framework suggest that the measurement indicators at the outlets shall be the performance of the outlet measured on various dimensions. From the pre-research studies, some of the dimensions were the quality of fuel, the brand relationship on fuels, Company's image, Company's reliability, Appearance, Trust and other factors were categorized as the performance indicators on which the customers would like to interact with the company.

Under the circumstances, it is proposed that the business performance of the company shall be seen intuitively using the performance indicators present at the outlet, which in turn affect the sales and the business performance of the companies.

Literature Survey collaborate a number of studies listed in Table 4.1 , which has been carried out as a measure of performance. Some of the studies are listed below:

**Table 4.1 Litrature Survey on CRM and business Performance**

| Author(s) | Year | Country | Sample | Performance Measure |
|---|---|---|---|---|
| Reinartz,Krafft and Wayne | 2004 | Austria, Germany, Switzerland | 98 companies | 1. Return on Assest |
| Deshpande and Farley | 1999 | India and Japan | Large Companies whose stocks is traded in India and Japan | 2. Relative Profitability compared to competitors.<br>3. Relative Size<br>4. Relative Market Share<br>5. Relative Sales Growth |
| Caruana et al | 1999 | Australia | 171 government departments in the states of Queensland, Victoria and Western Australia | 1. Overall Performance<br>2. Improvement Achieved<br>3. Level of Customer Service<br>4. Cost Effectiveness |
| Vorhies et al | 1999 | Australia | 87 Large Manufacturing and service companies | 1. Profitability<br>2. Customer Satisfaction<br>3. Adaptability |
| Greenlay | 1995 | United Kingdom | 240 Companies | 1. Return on investment<br>2. Sales growth<br>3. New Product Success |
| Pulendran | 1996 | Australia | 105 SBU's | 1. Management opinion on overall Performance<br>2. Relative return on investment<br>3. Relative Sales growth. |
| Slater and Narver | 1994 | United States | 107 SBU's in two companies | 1. Relative return on investment<br>2. Sales growth<br>3. New Product Success |
| Jaworski and Kohli | 1993 | United States | 1. Sample one: 222 SBU's in 115 comp.<br>2. Sample Two: 230 Companies | 1. Market Share<br>2. Management's Opinion on overall Performance. |
| Diamantopoulos and Hart | 1993 | United Kingdom | 87 Companies | 1. Relative Market Growth<br>2. Relative Profit Margin |

Further a business model was proposed by **Reinartz, Krafft, Wayne, 2004),** which has been discussed in details as follows:

**Model as proposed by Reinartz, Krafft, Wayne, 2004)** :The basis of this thesis has drawn past relevance from the study conducted by (Reinartz, Krafft, Wayne, 2004), which highlighted the CRM process, its measurement and impact on performance. The authors had used the existing academic literature and the practical applications of customer relationship management (CRM) strategies and concluded: (1) conceptualize a construct of the CRM process and its dimensions, (2) operationalize and validate the construct, and (3) empirically investigate the organizational performance consequences of implementing CRM processes. Their research questions were addressed in two cross-sectional studies across four different industries and three countries. The first key outcome was a theoretically sound CRM process measure that outlines three key stages: initiation, maintenance, and termination. The second key result was the implementation of CRM processes has a moderately positive association with both perceptual and objective company performance.

It was understood from the study that today organizations are realizing that customers have different economic value to the company, and they are subsequently adapting their customer offerings and communications strategy accordingly. Thus, organizations are, in essence, moving away from product-or brand-centric marketing toward a customer-centric approach.

The study also addressed some key problems. Although the conceptual underpinnings of a customer relationship management (CRM) strategy is hardly questioned, the implementation challenges appear to be enormous, as evidenced by commercial market research studies. These studies provide some convergent validity that approximately 70% of CRM projects result in either losses or no bottom-line improvement in company performance (Gartner Group, 2003).

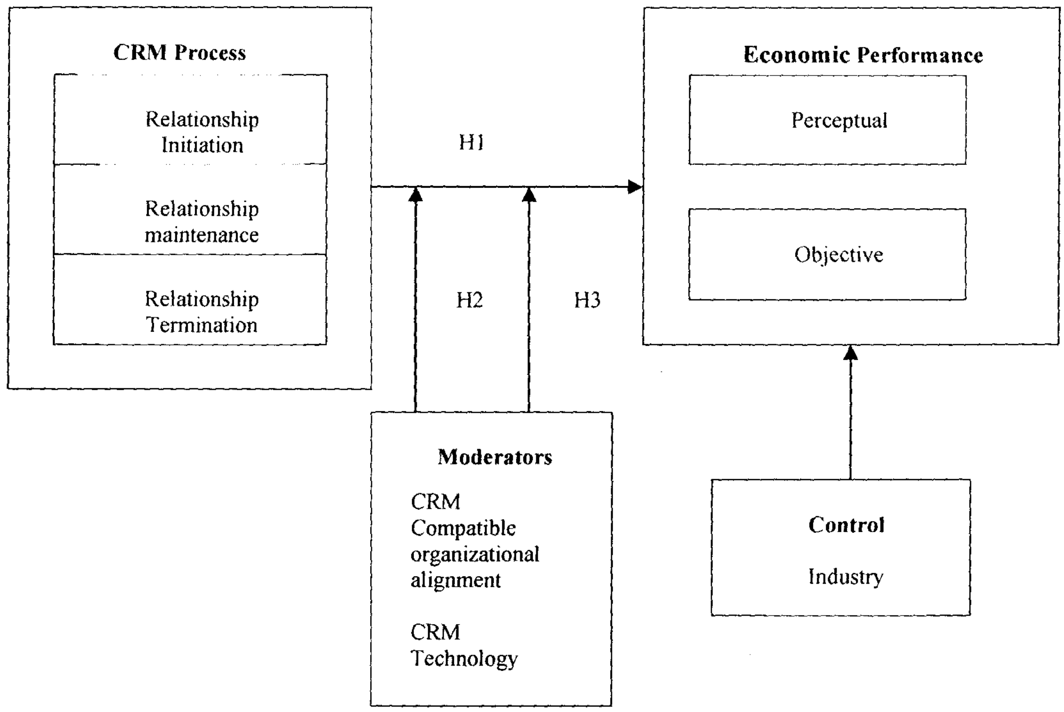
Previous studies have focused on components of CRM strategy, such as the link between satisfaction and business performance (Kamakura et al. ,2002), the link between customer loyalty and profitability (Reinartz and Kumar, 2000), customer profitability heterogeneity (Niraj, Gupta, and Narasimhan, 2001), and customer loyalty programs (Verhoef, 2003). However, there is a severe lack of research that takes a broader, strategic focus across firms. There is no clear evidence regarding either the characteristics of successful CRM approaches or the reasons CRM may potentially fail. Furthermore, the existing academic literature and practical applications of CRM do not provide a clear indication of what specifically constitutes the implementation of CRM processes. Some companies view CRM primarily as investments in technology and software, whereas others treat CRM more expansively and are aggressive in developing sound and productive relationships with customers. In addition, some companies have implemented CRM processes to a greater degree than others. Therefore, it is important to identify the types of CRM activities that companies can employ and to explore how these relate to company performance and profitability.

With the statement of this situation, (Reinartz, Krafft, Wayne, 2004), tried to conceptualize and operationalize a measure of the degree to which CRM processes have been implemented and to developing such a measure or index of CRM processes which determined whether higher levels of CRM implementation are associated with improved economic performance and subsequently some conditions in which CRM processes are associated with superior performance outcomes (i.e., moderators of this relationship).

In order to arrive at the level where this measure was researched was at customer-facing level rather than at functional or at company level. This perspective included the building of a single view of the customer across all contact channels and the distribution of customer intelligence to all customer-facing functions. This view stressed the importance of coordinating information across time and contact channels to manage the entire customer relationship systematically. In order to do so, (Reinartz, Krafft, Wayne, 2004) suggested that companies should recognize four distinct factors as suggested earlier in the literature: ( 1) Building and managing ongoing customer relationships delivers the essence of the marketing concept (Morgan and Hunt 1994; Webster 1992), ( 2) relationships evolve with distinct phases (Dwyer, Schurr, and Oh, 1987), ( 3) firms interact with customers and manage relationships at each stage (Srivastava, Shervani, and Fahey, 1998), and ( 4) the distribution of relationship value to the firm is not homogeneous (Mulhern 1999; Niraj, Gupta, and Narasimhan, 2001). All the above factors as detailed have been subsequently reviewed in the literature in detail. The paper suggest the literature reference to the building and managing of ongoing customer relationships delivers the essence of the marketing concept (Morgan and Hunt, 1994; Webster, 1992) transaction cost theory (Rindfleisch and Heide, 1997), CRM process evolution which suggest that relationships evolve with distinct phases (Dwyer, Schurr, and Oh ,1987), recognition of relationship evolution has implications for the organization and that firms interact with customers and manage relationships differently at each stage (Srivastava, Shervani, and Fahey , 1998) and that distribution of relationship value to the firm is not homogeneous (Mulhern 1999; Niraj, Gupta, and Narasimhan, 2001).

(Reinartz, Krafft, Wayne, 2004) suggested that the continuous balance of CRM activities at each stage (i.e., customer acquisition, retention, and relationship termination) should be guided by the attempt to maximize the value of the set of concurrent customer relationships and thus should be associated with better overall company performance. Therefore, according to them, CRM process at the customer-facing level is a systematic process to manage customer relationship initiation, maintenance, and termination across all customer contact points to maximize the value of the relationship portfolio. In order to prove the same a, conceptual model as perceived by them is shown in fig below:

**Fig. 4.2 Model as proposed by Reinartz, Krafft,Wayne, 2004**




This model also entails the approach of the similar frameworks that address similar issues, including the service profit chain (Heskett et al, 1994), return on quality (Rust, Zahorik, and Keiningham, 1995), customer asset management (CAM; Berger et al., 2002), and customer equity (CE; Blattberg, Getz, and Thomas, 2001; Rust, Lemon, and Zeithaml , 2001). All four approaches were customer-centric, and customer knowledge (e.g., customer databases, surveys) and are critical to their implementation. However, whereas the service profit chain and return on quality approaches address service quality issues, the CAM and CE approaches, as well as measure of CRM processes suggested by this model, focus more on companies identifying profitable customers and treating them adequately. The CAM and CE approaches deal more with the application of traditional marketing techniques to manage customer assets in terms of homogeneous customer segments. In contrast, CRM expands on this model approach by supplementing traditional marketing techniques with other relationship management activities (e.g., systems to regain lost customers, up-selling and cross-selling, referral management) at the clearly identified stages of the customer relationship (i.e., initiation, maintenance, and termination). Finally, CAM and CE focus on customer segments as assets, whereas this CRM process framework centers on individual customer relationships. Thus, this CRM approach supplements the important principles that emanate from these other frameworks. In addition, it is important to note that the key concept of customer satisfaction is a central foundation across all these approaches (Oliver, 1999).

In terms of performance outcomes, the three CRM dimensions were related to two types of performance measures: perceptual and objective. Although most research in marketing strategy assesses the impact of the focal construct on perceived performance (e.g., Bharadwaj, Varadarajan, and Fahy ,1993; Kohli and Jaworski ,1990), the model suggested by (Reinartz, Krafft, Wayne, 2004) assessed the association with a measure of objective economic performance (Varadarajan and Jayachandran, 1999). However, while considering the economic performance link, several moderating variables such as supply-side characteristics include a CRM-compatible organizational alignment (i.e., training procedures, employee incentives, and organizational structure) and CRM technology (e.g., investments in CRM technology, one-to-one communication capabilities) were also taken into consideration.

**Using these constructs, (Reinartz, Krafft, Wayne, 2004) suggested three hypothesis:**

- **Effects on Economic Performance:** That there is a significant and positive association between the degree of a business unit's customer management practices with regard to relationship initiation, maintenance, and termination and the business unit's economic performance.

  **H-1: Higher economic performance is associated with greater implementation of CRM processes at the stage of relationship (a) initiation, (b) maintenance, and (c) termination.**

- **CRM-Compatible Organizational Alignment** : That if companies stress to employees that CRM activities are important, structure their organizations to facilitate these activities, and reward employees for engaging in CRM-related activities, the companies are more likely to stress these activities in their interactions with customers.

  **H-2: The greater the level of CRM-compatible organizational alignment, the stronger is the positive link between economic performance and relationship (a) initiation, (b) maintenance, and (c) termination.**

- **CRM Technology** : Though there were conflicting arguments about the direction of the effect of CRM technology on firm or economic performance. However, because there seems to be more positive moderating effect for CRM technology. Thus:

  **H-3: The greater the level of CRM technology, the stronger is the positive link between economic performance and relationship (a) initiation, (b) maintenance, and (c) termination.**

**Control Variable** :To control for the possibility of variance across different industries, the type of industry was used as a control. This enables to account for mean differences of economic performance across industries.which can have direct implications on the business performance in the public sector oil companies. In doing so. If the actual performance in customer management is not improving, then can it have effect on the business performance of the companies?

Further research on the topic has also collaborated that effective approaches to CRM are based on analysis and planning which involves collection and maintenance of data pertaining to customers and from this segmentation is performed. Models were developed to help understand how to set targets and to improve profitability and thereby performance. The whole approach is documented by Woodcock, who points out that

CRM involves all parts of an organization, illustrating its holistic nature. Woodcock advances the use of Customer Management Assessment Tool (CMAT) to measure and audit the CRM effort. The CMAT approach gives tools to measure and assess planning and analysis, customer proposition development, enabling of people in the organization, measurement of outcomes, understanding of the customer experience and the utilization of information and technology. CMAT assessment is a formal evidence-based assessment of how well an organization manages its customers. It includes assessing current CRM activities, developing a vision for the future and deploying programmes of change. Woodcock and Woodcock and Starkey correlated judgmentally derived scores in these categories with business performance and found high positive correlations. It was found that companies who scored well in analysis and planning also performed well on business performance metrics. Effective approaches to CRM are based on analysis and planning which involves collection and maintenance of data pertaining to customers and from this segmentation is performed.

This study therefore, analyses the CRM factors, which can affect the performance of the companies in the context of petro-retailing. Though many studies have been done on the subject of CRM process, its measurement and impact on performance, but there is no study available on the impact of CRM in petro-retailing and how it can impact the performance of the public sector oil companies. Also, there is no studies done to find out the impacting factors of the customer relationships in petroleum sector. Also missing in literature is the effectof these impacting factors on customers and finally the companies. Some of the objectives and the research gaps identified are discussed in details in the next chapter.

# CHAPTER FIVE: RESEARCH METHODOLOGY AND DESIGN

**Chapter outline**

Based on the research gaps identified in the previous chapter in this study, a detailed description of research methodology is made. The Chapter starts with the determination of research objectives, which is based on the research gap and is the backbone of this study. Further this chapter summaries problem statement ,objectives of the research, formalizing research questions, development of appropriate framework, hypothesis development, the development of survey instrument, method of development, pilot testing, the data collection procedure, , data tabulation and its analysis. Limitations of the study have been expressed at the end of this chapter.

**5.1 Research Approach**

**5.1 Research Approach**

**5.2 Statement of the Problem**

**5.3 Objectives of the Research**

**5.4 Research Framework**

**5.5 Modified Research Model**

**5.6 Hypothesis of the Study**

**5.7 Questionaire Development**

**5.8 Sampling Plan**

**5.9 Sources of Data**

**5.10 Data Collection**

**5.11 Data Collection Procedure**

**5.12 Data Processing**

**5.13 Scope of the Study**

**5.14 Limitation of the Study**

## Chapter Five: Research Methodology and Design

### 5.1 Research Approach

The research design has the basis in the quantitative model techniques, which was considered appropriate for the purpose of this study - to test and empirically validate a measure of customer relationship with the performance of the public sector oil companies. One problem, which is faced with such research study, is that of reliability, validity and inherent bias, which can seep into the study due to the data interface being the customers. The present study has taken enough precautions that such errors and discrepancies do not set into the system. The basis of this statement is the availability of the evidence based on the extensive research methodology, which is mandatory for the development of proper diagnostic questionnaire and instruments, supplemented ably by the theories cited in the theory and literature. Consistent with the (Yin, 1994) research approaches; the study has the basis of exploratory research technique, which can be tested with the help of a hypothesis. It is also descriptive as it provides description of the contemporary CRM practices, which are being followed. Also, the study is not explanatory, as it does not test the casual relationships.

### 5.2 Statement of Problem

It was understood from the literature survey that today organizations are realizing that customers have different economic value to the company, and they are subsequently adapting their customer offerings and communications strategy accordingly. Thus, organizations are, in essence, moving away from product-or brand-centric marketing toward a customer-centric approach.

Although the conceptual understanding of a customer relationship management strategy is hardly questioned, the factor which affects this relationship appears to be enormous challenges. Previous studies have focused on components of CRM strategy, such as the link between satisfaction and business performance (Kamakura et al. ,2002), the link between customer loyalty and profitability (Reinartz and Kumar, 2000), customer profitability heterogeneity (Niraj, Gupta, and Narasimhan, 2001), and customer loyalty programs (Verhoef, 2003). However, there is a severe lack of research that takes a broader, strategic focus across firms. There is no clear evidence regarding the factors which characterizes the successful interaction of the customers with the company in the context of petro-retailing, where over a billion customers transact with the companies everyday. Furthermore, the existing academic literature and practical applications of CRM do not provide a clear indication of what specifically constitutes the impacting factors of the CRM processes. Some companies view CRM primarily as investments in technology and software, whereas others treat CRM more expansively and are aggressive in developing sound and productive relationships with customers. Still, the question remained about the way customers interact with the companies. There are no sound studies which identifies the reasons of such interaction of customers with the companies in the context of petroleum marketing.

In Petroleum marketing, some companies have higher market share compare to other companies in the same market. The key question therefore evolve about the " The Extra thing" which these companies are doing to their customers to bring them to their fold. The existing literature is salient on this issue and does not substantiate the efforts of one company over others. The absence of any sound theoretical reasoning has prompted this research and to identify the factors which can impact relationship of the customers with the company and how this impact relationship has reasoned the performance outcome.

Customer relationship management is a business strategy leveraging on the information technology that helps the business attract, retain and grow the most profitable customers. Customer Profitability is viewed as a 'performance outcome' of Customer Relationship Management (from the supplier's point of view). The Research aims to identify the factors impacting CRM in PSU oil companies in petro-retailing. Throughout the research, the Indian perspective of CRM will provide the backdrop of the analysis and will aim at focusing the research in the Indian Petroleum Corporate Sector, which are Indian Oil, Bharat Petroleum and Hindustan Petroleum Corporation Limited, IBP Company Limited, MRPL, BRPL, AOD all Government of India Enterprise under the nomenclature of Public Sector Oil Companies.

### 5.3 Objective of the Research

The comprehensive survey of literature identified the research gap and has defined the problem statement.. This identification is required to set the research ball rolling and for that purpose there is a need to clearly identify and state the objectives of the study. With the same idea the following objectives of the present study have been identified:

1) To understand the Components of CRM as applied in Public Sector Oil Companies.
2) To Analyze the determinants of CRM in Public Sector Oil Companies.
3) To Study the attributes influencing /impacting CRM in Public Sector Oil company.
4) To identify the Indicators that influences the relationship of the Customers with company.
5) To link if at all there was any Linkages of the CRM factors with the performance outcome of the public sector oil companies.
6) To identify the significant difference among the CRM impacting factors with in the Public Sector Oil companies.

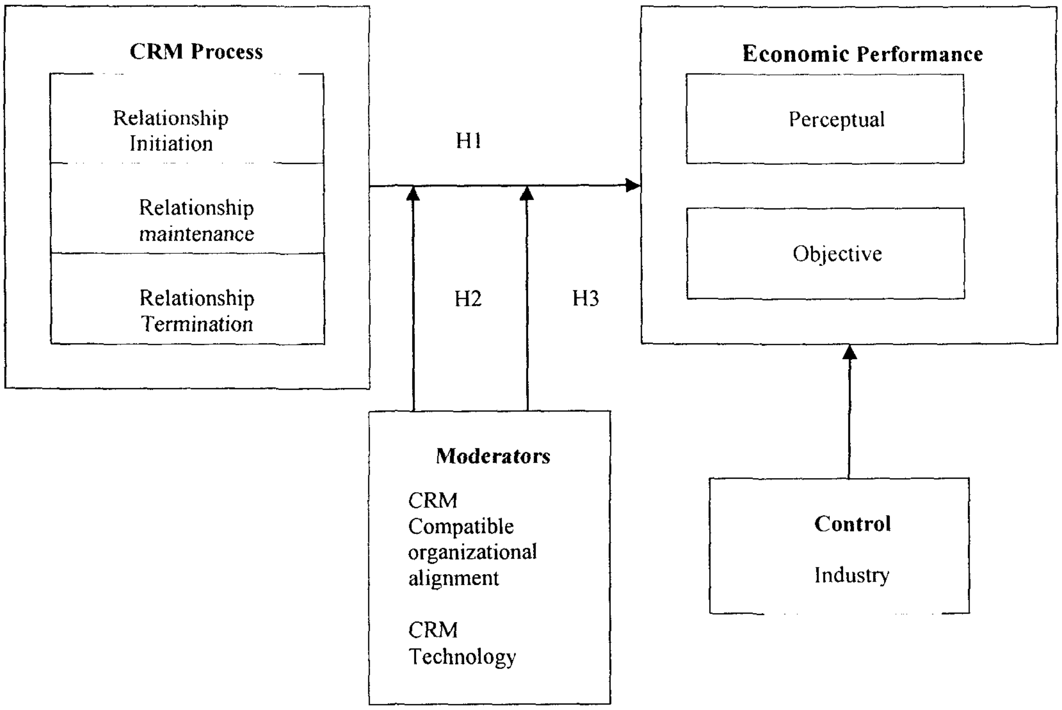
### 5.4 Research Framework

The research framework of the thesis has been developed on the previous research of Reinartz, Krafft, Wayne (2004) ,which highlighted the CRM process, its measurement and impact on performance. The authors have indicated the understanding of CRM investigation based on the following process: (1) conceptualize a construct of the CRM process and its dimensions, (2) operationalize and validate the construct, and (3) empirically investigate the organizational performance consequences of implementing CRM processes.

It was understood from the study that today organizations are realizing that customers have different economic value to the company, and they are subsequently adapting their customer offerings and communications strategy accordingly. Thus, organizations are, in essence, moving away from product-or brand-centric marketing toward a customer-centric approach.

(Reinartz, Krafft, Wayne, 2004) suggested that the continuous balance of CRM activities at each stage (i.e., customer acquisition, retention, and relationship termination) should be guided by the attempt to maximize the value of the set of concurrent customer relationships and thus should be associated with better overall company performance. Therefore, according to them, CRM process at the customer-facing level is a systematic process to manage customer relationship initiation, maintenance, and termination across all customer contact points to maximize the value of the relationship portfolio. In order to prove the same a, conceptual model as perceived by them is shown in fig 5.1.

**Fig. 5.1 Model as proposed by Reinartz, Krafft,Wayne, 2004**



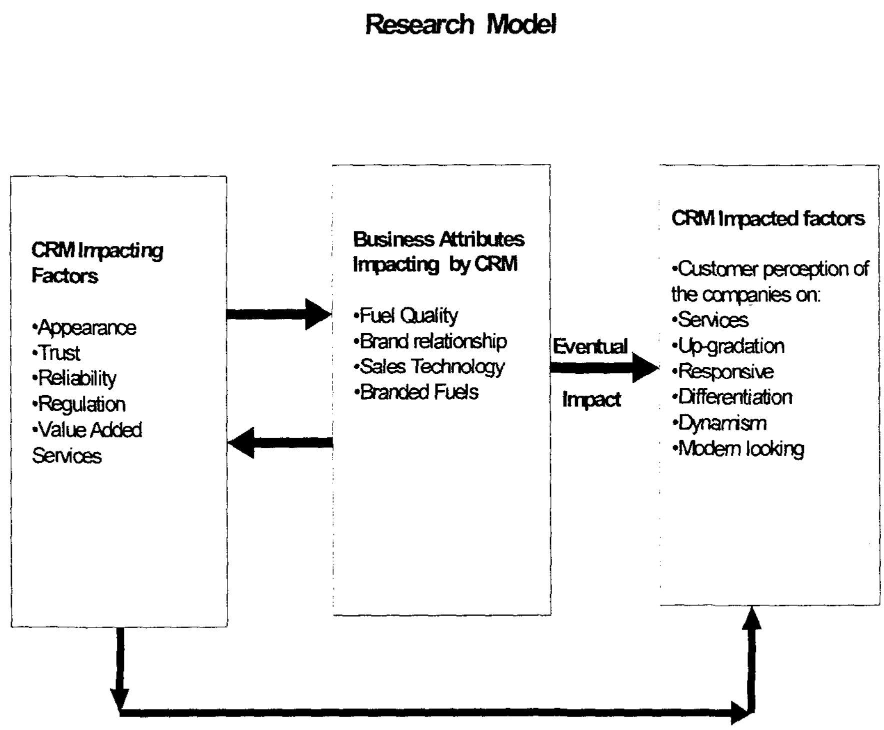

## 5.5 Modified Research Model

Based on the exploratory research, pilot study and on the basis of the Conceptual model derived from the theories and postulates in the previous research, the CRM model has been modified to suit our research. The research framework proposed in this study tries to examine the CRM determinants and the business attributes impacting CRM.

It is hypothesized that the relationship between the CRM determinants and the business attributes are conversely true and they in turn influence each other. The net outcome of the two also influences the business performance. The marketing literature mostly talks about the business performance outcome in relation to the Sales performance as well as market share. The marketing literature reflects on the sales performance of the manufacturing companies and many other companies. However, the oil companies, which service large number of customers, are being assessed in this context and very limited literature supports this study.

Thus, framework which has been adopted for evaluation of the CRM on business performance is indicated in fig 5.2.

**Fig 5.2 : CRM Model – Modified Research Framework**




The exploratory research was done extensively to develop a scale, which could measure CRM based on the impacting factors. Figure- 5.2 outlines the framework and the hypothesized relationships.

***5.5.1 Fuel Quality:*** (Parasuraman. Zeithynl and Berry, 1986, 1988; Barksdale and Darden, 1972) derived models which have been referred in measuring the Fuel Service Quality, Regulations and Consumers attitudes towards Marketing.

***5.5.2 Brand Relationship:*** Measure of the Physical aspects of the Retail outlet, Outlet image in the market place, Customers involvement in the buying process and his involvement in buying process are some of the factors, which have been responsible for measuring the brand relationships.

The models suggested by (Dabholkar, Pratibha A., Dayle I, Thorpe, and Joseph O. Rentz. 1996; Maolis, Joyce and Lambart, 1994; Lastovicka and Gardner, 1979; Mittal, 1989) were referred to measure the brand relationships on the basis of the factors which were scientifically measured over a wide range of samples and period. Some of the factors responsible for the measurement of the Brand relationships were the appearance, convenience, right processes, attitude of the sales personnel's etc who contributes to the measurement.

***5.5.3 Sales Technology:*** Factors responsible for the measurement of the sales technology such as courteousness, performance as suggested by (Dabholkar, Pratibha A., Dayle I, Thorpe, and Joseph O. Rentz. 1996; Bienstock, Mentzer, and Bird, 1997), the scale was tested on number of factors and have been used for measurement of the sales technology.

***5.5.4 Branded Products:*** Some of the concepts used in the entire research have been based on the premise that oil companies have evolved many brands over a period and these brands have to be measured from the customer perspectives. (Muncy, James A, 1996). Zimmer and Golden 1988; Hess, Jeffrey S., 1995; Raju, 1980; Barksdale, Hiram C., and William R. Darden, 1972) developed scales which measured the above based on the concept of the customer perception on brands, switching behaviors, variables of CRM determinants and the business attributes affect" the outcome of the variables on business performance. Some of the variables shall be assessed with the help of secondary data, while the primary data shall highlight the impact on the other variables. The model thus formed the basis of the working of the CRM impacting factors and led to the development of the proposed hypothesis.

As conceptualized, the framework applies to the current study of understanding impact of CRM on performance of Public sector oil companies. Each relationship shown in the figure corresponds with the objective of the study. The questionnaire was developed to identify the factors which the customers see as the impacting factors in purchase of fuel and services from Petrol Pumps. According to them they are the factors which they see as components, which measures their relationship with the company. There factors are termed as the CRM Factors.

Based on the model, some of the operational definition has been defined in the context of this research:

***CRM:*** A process by which firms are able to adjust their interactions according to the life cycle stages of their customers and try to fulfill the expectations that arise of the interaction of the firms with their customers. The firms decisions are influenced in various stages by maturing of relationships with their customers. These relationships are identified by the firms by activities that are recognized by the customers in a way that they are impacting and influenced in such a way that it is mutually rewarding for both customers and company. The customers are able to recognize the efforts of the company and respond by rewarding the company and thereby influencing their performance.

***Impacting factors :*** The attributes created by the company to enhance the experience of the customers at each interaction with the company and by which the customers are able to differentiate the services between the various firms.

***COCO:*** A terminology used by the oil companies, by which it is able to determine the type of the physical retail store which are visited by the customers. Company owned, company operated outlets are those which are operated and managed by the company including provision of the own manpower.

***Dealer operated:*** The only diffrentiater with the COCO is that the facilities are managed and operated by the dealer, an intermediatory, who signs an agreement to provide the similar working ambience as that of a COCO.

### 5.6 Hypothesis of the Study

For achieving, the objectives of the study hypothesis were developed based on the identification of independent and dependent variables related with the study. The oil Companies which are refining and marketing organization provides services to their customers and are independent variables and customer satisfaction are dependent variables. The role played by the retail outlets in distribution of petroleum products and the interface between company and customers is dominant so their services have got prominent position as compared to the organization as such. The following hypotheses have been developed for study and testing. The hypotheses as mentioned below are reflective of this premise and are tested in detail in the subsequent chapters.

**The Hypothesis are:**

**H-$_{01}$:** ***There is no significant difference among the companies on CRM Factors.***

**H-02:** ***There is no significant difference among the Category of outlets on CRM Impacting factors.***

**H-03:** ***There is no significant difference between the companies on CRM impacting Factors.***

**H-04:** ***CRM impacting Factors do not contribute to Performance.***

**H-05:** ***There is no significant difference among the CRM impacting factors that contributes to performance***

The hypothesis were formed on the basis of the satisfaction with the services as perceived by the customer at the point of the interaction of the customers with the company, which in this case is the retail outlet, where the interface of the customers are taking place with the company. Other hypothesis also have base on the satisfaction of the customers with different Company under study, satisfaction level of the customers with those services and the performance of the companies. The research hypotheses were formulated with respect to the specific relationships in the conceptual framework.

### 5.7 Questionnaire Development

There was no ready made instrument for the analysis and evaluation of CRM in either public sector or private sector. Moreover, there is no study in manufacturing or service sector so a self designed questionnaire was the only option left for this purpose.

The development of the questionnaire was a multi stage process. In the first stage, based on the objectives and hypothesis the instrument was developed. The statement developed for the instrument was taken from the literature which included Service Quality at Outlets (Parasuraman. Zenithal and Berry, 1986, 1988), Service quality of retail outlet stores (Dabholkar, Thorpe, and Rentz, 1996), Measurement of Physical Distribution Service Quality( Bienstock, Mentzer, and Bird (1997), Retail Outlet Store Images( Zimmer and Golden ,1988, Maolis, Joyce and Lambart ,1994), Brand parity (Muncy 1996), Components of Involvement (Lastovicka and Gardner,1979), Purchasing Decision Involvement (Mittal 1989), Exploratory tendencies in consumer behavior scales (Raju, 1980), Brand trust, (Hess,1995) Consumer attitudes towards marketing and consumerism(Barksdale and Dardan (1972). A pilot study / survey was conducted to refine the questionnaire. The instrument without proper validation based on reliability and validity can not give proper result so it was checked on these parameters at the second stage after collecting data from 35 respondents. The questionnaire was given to the industry experts as well as academicians. Their comments were incorporated before finalizing the instrument. The questionnaire thus, developed has the scientific basis of evolvement of the questions can be considered reliable. The questionnaire was developed in English. (Ramachandran, 1991) suggested that the questionnaire should be translated into a local language to avoid miscommunication and misinterpretation if needed. However, in view of the large sample population available for the study, the questionnaire was not translated into any other language.

***Pilot Test of Questionnaire***

The questionnaire was pre-tested with a sample of 35 respondents in NCR to validate the questionnaire before the real data collection process began. Burns and Bush (1998) suggested that a pre-test of 5-10 representative respondents is usually sufficient to identify problems with a questionnaire. The pre-test group consisted of 35 respondents at a company owned/dealer owned station of a company. The participants were asked to evaluate the questionnaire for the clarity, bias, ambiguous questions, and relevance to the Customer Relationships of customers with the company. The participants were also asked to comment on the instrument with regard to wordings, sequencing, and timing. The pre-test study indicated that time needed for answering the questionnaire was too long, especially the ranking of the factors, which required the respondents to refer mentally to the outlet. The format of the questionnaire was later redesigned and seven of the ranking factors based on the feedback of the respondents were deleted to shorten the time spent. Also, these factors were chosen among the top seven factors, which were part of the initial study of ranking. Table 5.1 and 5.3 gives the details of the ranked factors. The reliability and validity of the statements were checked. It was found that the initial statements were too long and were not understood by the respondents, leaving a scope for improvement and therefore, the questionnaire was modified many times till such time the instruments confirmed to the standards of reliability and validity. For further confirmation and development of confidence in the instrument, the reliability was tested on the actual data collected from the sample and it was found in line with the pilot study.

The sample questionnaire of such previous work done is given in the appendix along with the final and validated instrument. The reliability and validity test of the questionnaire has been discussed in the next chapter.

**Table 5.1 Fourteen Ranked Factors considered important for Petro-Relationship**

| | Factors |
|---|---|
| 1 | Proximity to house |
| 2 | Convenience to travel plan |
| 3 | Availability of Quality fuel/branded fuels |
| 4 | Quantity of fuel |
| 5 | Ambience of the station |
| 6 | Mileage/liter from a particular petrol pump. |
| 7 | Promptness of the dealer to serve |
| 8 | Identification with the Dealer |
| 9 | Vehicle upkeep on value addition |
| 10 | Convenience of payment |
| 11 | Staff Quality and accessibility |
| 12 | Equipment Quality at the petrol pump. |
| 13 | Company's image in that market. |
| 14 | Availability of Value added services (Servicing, Stores etc) |

**Table 5.2 Seven Ranked factors by the Customers**

| | Factors |
|---|---|
| 1 | Convenience to travel plan |
| 2 | Availability of Quality fuel/branded fuels |
| 3 | Quantity of fuel |
| 4 | Ambience of the station |
| 5 | Convenience of payment |
| 6 | Company's image in that market. |
| 7 | Availability of Value added services (Servicing, Stores etc) |

The design of the questionnaire has been done on the following grounds and the questionnaire contained four parts:

1. The Customer Profile
2. The ranked factor important in the Fuel buying process
3. The questions to measure the factors which customers perceive as the CRM impacting factors.
4. The demographic profile

The demographic profile of the customer has been taken to identify the groups of the respondents.

## 5.8 Sampling Plan

In order to choose sampling units towards empirical study of the Customer Relationship management and its impact on business performance, several scenarios and frameworks have been suggested in the literature. The work definition of the sampling plans is as follows:

***5.8.1 Sample Size:*** (Malhotra et al., 1996) defined sample size as the number of elements to be included in the study. The required sample size for research using multiple regressions as a major form of analysis depends on a number of issues, such as the desired statistical power, alpha level and number of independent variables (Tabachnick and Fidell, 1996). For example, at the statistically significant level (power) of 0.80, with a significant level (alpha) of 0.05, with up to 10 independent variables, and with a minimum R2 value of 20 required, a minimum sample size of 100 is needed (Hair et al., 1998). The other way to determine the sample size for research using regression analysis is to calculate the ratio of cases per independent variables. (Green, 1991) suggested that a desirable sample size should be more than or equal to $50+8m$ ($m$ is the number of independent variables) for testing the multiple correlation, and $N= 104+m$ for testing individual independent variables. In addition, (Hair et al., 1998) pointed out that sample size could also affect the generalisability of the results by the ratio of observations to independent variables. The desirable ratio should be between 15-20 observations for each independent variable. However, it is acceptable if the ratio is as low as 5 to 1 (Hair et al., 1998). The type of study, which deals with the identification of the customer interactions at the retail outlets, a sample size of around 500 was considered sufficient for this research and also qualifies the norms as stipulated by (Malhotra et al., 1996).

***5.8.2 Sampling Frame:*** (Malhotra et al., 1996) defined a sampling frame to be a representation of the elements of the target population. Since the customers of the sampling units are scattered across the country, it was considered to keep the research confined to area which represents the target population. The sampling frames in this case are the list of the customers who have interacted with the company. The list considered appropriate for the research was provided by the dealer included the names of respondents who were frequent visitor and have visited the outlet at least once during the four months when the data collection exercise was being done. These customers were using credit cards, participated in the promotional schemes of the company and have shared their details such as name and contact details with the company and were self vehicle drivers. From this list of the customers, the sample was drawn.

The samples were drawn from two different set of outlets, which were considered appropriate for the study and the geographical region considered was Delhi National Capital Region. The numbers of the outlets chosen were kept uniform to avoid biasness.

***5.8.3 Sampling Unit Perspective:*** (Malhotra et al., 1996) defined that the target population is the collection of elements or objects that possess the information sought by the researcher and about which inference can be made. The target population should be defined in terms of elements, sampling units, extent and time. An element is the object about which or from which the information is desired. The element here are the customers who visits the outlets of these PSU companies and forms the part of the target population and the list prepared for collection of the data from the sampling frame is the sampling unit. In the research, the sampling frame, sampling unit and the elements are the customers.

***5.8.4 Sampling Procedure:*** The sampled data on the CRM efforts has been collected from a representative cross section of respondents who were approached without any prejudice or pre qualification. The sampling has to be stratified random sampling as the respondents may have different experiences in co-relating the volume and services relationships on a structured questionnaire to conclude the business performance.

***5.8.5 Sample Conditioning:*** Literature on conditioning gives valuable insights on the issue of respondent conditioning. Two issues normally are important: Biases and conditioning. In any questionnaire interview a number of potential biases may occur. These include collecting the wrong information, questionnaire bias and interviewer bias. A clear way of removing the bias is to have Respondent conditioning. (Buck et al., 1977) defined respondent conditioning as a change in measured consumer behavior due solely to the act of measurement. Respondents can be affected by earlier interviews in two broad ways. First, the earlier interview(s) might trigger greater sensitization to the topic and learning about the topic. Second, a respondent's disposition to the research process itself might change and so affect responses. Therefore, the respondents in our case were carefully selected from the pool of the customers who were regularly visiting the outlets and were then sampled in a stratified random sampling method

***5.8.6 Sampling Method:*** A stratified random sampling method was used in this study. (Malhotra et al., 1996) categories the systematic sampling method as a probability sampling technique. They point out that a sample, in a systematic sampling method, is chosen by selecting a random starting point and then picking every *K*th element in succession from the sampling frame. It is more or less similar to simple random sampling, in that each element in the population has a known and equal chance of being selected. The only difference is that only permissible samples of size *n* can be drawn with a known and equal probability of selection, while the remaining sample of size *n* has a zero probability of being selected (Malhotra et al., 1996).

(Aaker, Kumar, and Day, 1998) argue that the accuracy of systematic sampling can exceed that of simple random sampling when the ordering of the elements is related to the characteristics of interest because the sample will be more representative of the population. In this study, every 5th name was automatically selected, starting from the 4th name on the list. For example, the sample included the 4th name, the 9th, the 14th, the 19th, and so forth. A total of 100 names were selected from the list for each retail outlet. From these names, the first 15 were selected. Any shortfall on the sample, wherein the respondent did not come, the next name in the list was selected.

## 5.9 Sources of Data

Data has been taken from company's internal records, from Government of India records and also from sources, which from petroleum company point of view were authenticate and relevant. The basic aim of the research is to understand the significance of CRM for the chosen corporate and its relevance in current business strategic context. From the collected data, it was seen whether business performance could be enhanced using CRM practices in this organization.

In order to arrive at an empirical outcome of the study, the data collected from the customers impacting the Customer relationships between the company and customers was analyzed, which was collected from the Sample data collected directly from the customers and has been detailed in the subsequent chapters.

## 5.10 Data Collection

***5.10.1 Source of data:*** The data has been collected from individual customers who are primarily using fuels for usage of self-consumption in their automobiles and vehicles and are visiting company's retail outlets.

The data collection in the scope of the study has been done in the form of Primary data taken from the two category of outlets i.e COCO ( Company owned and company operated) and dealer owned. Therefore, from the list of over 500 outlets, the selection was made for the Company owned company operated outlets and dealer operated outlets, which would be representing the cross section of the company operations along with similar parameters 'of operations. It is therefore, that these categories of outlets have been selected for this scope of the study. Moreover, the sample of each company has been taken as 15 outlets including 3 company owned and company operated.

***5.10.2 Primary Data:*** The Primary data has been collected directly from the customers. Consumer Data using the structured questionnaire to understand their profile, satisfaction, serviceability and growth for the company was made to understand the CRM factor, which can impact the business of the company. The method of collection of the primary data has already been explained in the sampling plan.

***5.10.3 Respondent Quality Assessment:*** In order to assess the quality of the key respondents, a two-item scale was developed. This scale was based on that used by Mishra, Heide and Cort (1998). The questions ask how confident the respondent was to report on the CRM impacting factors and its impacts in the context of retail outlets of the companies.

***5.10.4 Data Points:*** To collect the data, a questionnaire was designed which is attached. The questionnaire was subjected to the test of reliability and validity and each set of questions were chosen for clarity of the answer sought in the question. The Values of the data were validated using the SPSS/Minitab package.

## 5.11 Data Collection Procedure

This study also employed the survey method, which makes use of a questionnaire. There are many types of survey methods but in this case, a self-administered questionnaire was selected as the means to data collection. A self-administered questionnaire was chosen for several reasons. Firstly, this method is commonly used in similar kinds of research (e.g., Narver and Slater, 1990; Jaworski and Kohli, 1993; Pelham, 1997; Kumar

Subramanian, and Yauger, 1998). Secondly, it enables the researcher to undertake the complete test covering the entire context and can personally supervise that the questionnaires have been filled in details. Though the method is not only time consuming, but also it allows researcher to ensure that the data covered is free from biasness and the sample represents the complete population. Though, there is bound to be some biasness in selection of the sample, but covering the larger population, the biasness can be eiminated in the overall sample.

1. A cover letter was used, introducing the researcher, the objectives of the research and the important of the survey. A supervisor support letter was also attached to confirm that the researcher came from the cited academic institution and to ask for co-operation from participants.

2. The data was collected by administering the instrument to the respondents directly. However to ease collection of the data, help was taken from the representatives of the company who facilitated by fixing the time with the respondents. Since the questionnaire takes a reasonable time, the respondents were taken care and were rewarded by ongoing schemes of the oil companies, which included the a pack of chocolates. Hand towels, toffees, car towel box etc.

3. The Geographical area was covered in one day, which included at least 1-2 outlets.

### 5.12 Data Processing

The data collected through above was compiled and appropriately tabulated. The analysis of quantitative and qualitative data was done using trend analysis and various statistical techniques, keeping in mind overall objectives of the research. To validate the hypothesis of the research, data has been analyzed analytically to arrive at a positive or negative performance of the organization due to CRM practices. Finally, the findings from the primary sources as well as secondary resources were utilized keeping in view the research objectives and sub objectives to arrive at some definite conclusion.

***5.12.1 Data Preparation Procedures:*** The raw data was edited, coded and converted into the actual variables of interest. The variables were checked for outliers and other abnormalities according to the underlying assumptions employed in multiple regression analysis.

***5.12.2 Entering, Checking and Transforming the Data:*** The raw data was coded and entered into a data file. These entries were double checked for errors to ensure the correctness of the data entry. The coded databases were analyzed using SPSS (statistical package for social sciences) 15.0 for window. SPSS is one of the most widely used social statistical packages (Afifi and Clark, 1998). The Frequencies command in SPSS was again used to detect any coding error. Re-coding and transformation of data into different variables were done.

***5.12.3 Checking for Violations of Assumptions in Multiple Regression Analysis:*** The variables were also checked for outliers, normality, linearity, multicollinearity, and homoscedasticity to satisfy the underlying assumptions of the Multiple Regression Analysis.

***5.12.4 Data Analysis Procedures:*** Data was analyzed using SPSS for Window 15.0. A detailed analysis of the constructs used in this study is presented in the next chapter. The test with were applied on the data other than calculation of mean, frequencies, standard deviation etc were t-test, duncans mean test, ANOVA, multiple regression. The results of the correlation analysis and multiple regression analysis were performed to test the strength of the associations between variables.

## 5.13 Scope of the Study

This study suffers from the usual spectrum of limitation as found in many doctoral research efforts. However, efforts are on to minimize their impact and provide as representative outcome as possible. It is important to define the boundary conditions under which this work has been conceived.

1. To arrive at definite conclusion from this research, the firm chosen were the Public Sector oil Companies which are IOC, BPCL,HPCL,IBP, NRL,CRL,AOD,CPCL, MRPL,ONGC, BRPL,KRL & OIL.

2. The scope of the study has been limited to the identification of the impacting factors which determines the relationship of the customers with the company.

3. The oil companies have various business portfolios, which has been described in the previous chapters. However, this study is limited to the identification of impacting factors in the retail business portfolio of the PSU companies.

4. The impacting factors have been measured at both the Company owned Company operated /Dealer owned outlets and the sample have been drawn from both the category of outlets to avoid biasness.

5. The responses from the respondents have been collected by the researcher during the period of six months.

6. The respondents of the companies have been restricted to the NCR Region.

7. the research study is expected to contribute to the newly developing field of CRM. The issue is critical in the context of the emerging deregulation and competitive scenario of the India corporate sector.

**5.14 Limitation of the study:**

1. All the above companies were included in the study. However, from the purpose of collection of the primary data, the limitations have been observed. There is a large variation in the values of the volumes handled by the companies ranging from 45 TMT to less than 1 TMT. Also among the companies, there are companies which have the market share less than 1%. Many of the PSU companies do not have all India presence and their foray into retailing has been just initiated. All the factors combined with the private players, only accounts for less than 5% of the market share and therefore keeping these viewpoints companies have been omitted from the scope of the study.

2. The sampling of the data was done using systematic sampling. However, since the sample population is very large and the sample size for the collection of the data is small, the sample may suffer from biasness despite care being taken.

3. No previous study has been conducted to measure impacting factors in the Pre-CRM implementation stage of the company.

# CHAPTER SIX : TESTS OF MEASURE AND CORRELATION ANALYSIS AND EMPIRICAL RESULTS

**Chapter Outline**

This chapter explains the method, purpose and scope of data collected for Measuring CRM Attributes in Public Sector Oil Companies. The data collected has been tested for reliability and validity from the research objective point of view. The chapter details the descriptive statistics, correlation analysis and how various Factors related to CRM are related to each other in the petroleum sector and how are they impacting the business performance. In this Chapter various methods employed for the analysis of the data collected has been explained and the reasons have been sighted for their usage.

**6.1 Respondent Profile:**
**6.2 Demographic Profile:**
**6.3 Analysis of the Questionnaire**
**6.4 Performance Relationship**
**6.5 CRM At the Customer Level**
**6.6 CRM at the Company Level**
**6.7 Overall Difference between the Category of Outlets impacting Performance:**
**6.8 Measurement of CRM factors impacting the companies:**
**6.9 Regression Analysis**

## Chapter 6 : Tests of measure and correlation Analysis and Empirical results

### 6.1 Respondent Profile

The data description is the first stage of analysis, which has been used, in the entire context. The data has been segregated based on the questionnaire. The two stage of segregation were from the analysis point of view and another the pure demographic data.

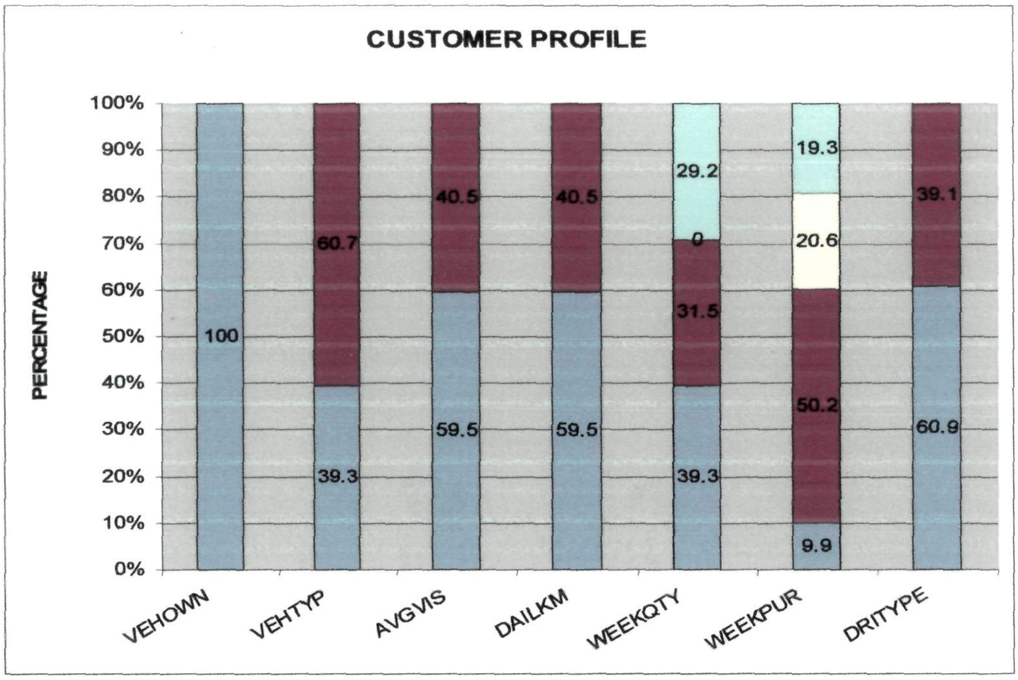
**Table 6.1**

| | | VEHOWN | VEHTYP | AVGVIS | DAILKM | WEEKQTY | WEEKPUR | DRITYPE |
|---|---|---|---|---|---|---|---|---|
| N | Valid | 486 | 486 | 486 | 486 | 486 | 486 | 486 |
| | Missing | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mean | | 1.0000 | 1.6070 | 1.4053 | 1.4053 | 2.1914 | 2.4938 | 1.3909 |
| Std. Deviation | | .00000 | .48892 | .49147 | .49147 | 1.23623 | .91435 | .48847 |
| Minimum | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Maximum | | 1.00 | 2.00 | 2.00 | 2.00 | 4.00 | 4.00 | 2.00 |

Table 6.1 indicates the means and Standard deviation of the Customer based on the vehicle ownership, vehicle types, average visit made by them to the company's outlets, kms traveled daily, weekly quantity and weekly value purchased by them and the type of vehicle driven by them.

As can be seen from the fig, the questionnaire was surveyed to the vehicle owners, from whom, 60.7% were LMV owners and rests 39.3% were two vehicle owners. Also, it was seen that 59.5% of the vehicle owners visit the outlet at least twice and rest 40.5% of the owners visit the around 3-4 times. Similarly 59.5% of the customers drive up to 50kms daily and 40.5% drive over 50 kms daily. This indicates that the there is likelihood of the customers visiting the outlet at least twice a week and therefore each transaction with the customer is important from the company's perspective and this relationship opportunity should be fully utilized by the company. Even in terms of the purchases, these customers spend over 750 to Rs. 1000 per week on the fuel bills for the four wheelers and also up to Rs. 100/- on an average for the two wheelers. Fig 6.1 indicates the Respondent profile based on the above-defined factors.

**Fig 6.1 Customer profile**




## 6.2 Demographic Profile

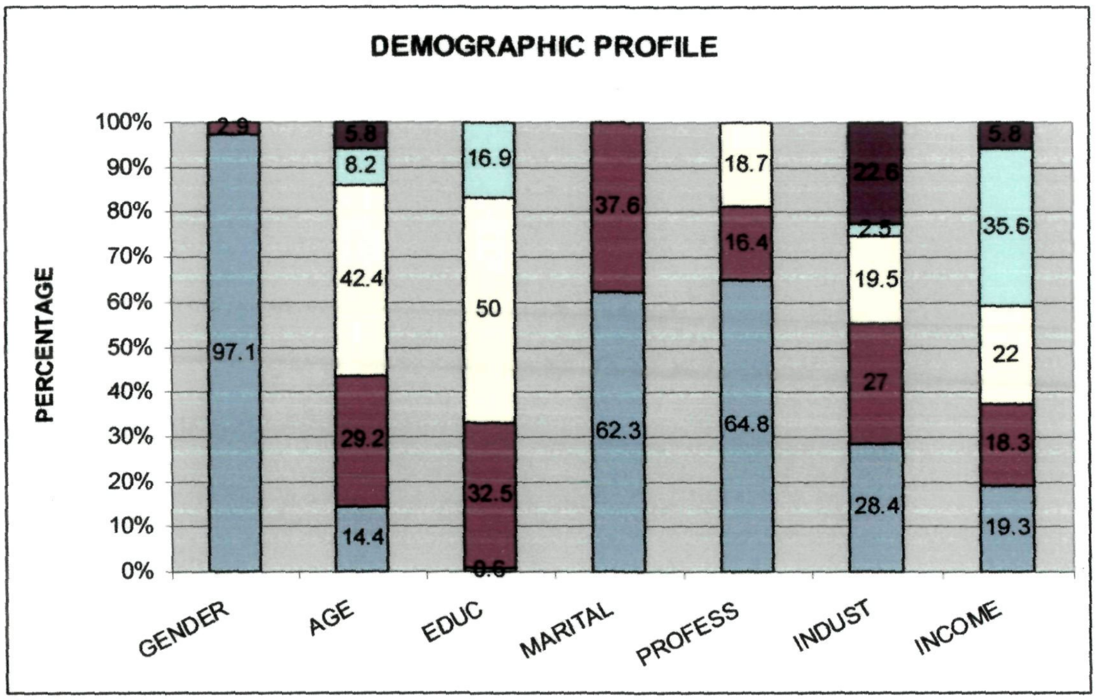
Table 6.2 indicates the means and Standard deviation of the respondent who participated in the research. The demographic profile was segregated based on Gender, Age, Education, Marital Status, Profession, Area of Work and Income.

Table 6.2

| | | GENDER | AGE | EDUC | MARITAL | PROFESS | INDUST | INCOME |
|---|---|---|---|---|---|---|---|---|
| N | Valid | 486 | 486 | 483 | 485 | 484 | 479 | 486 |
| | Missing | 0 | 0 | 3 | 1 | 2 | 7 | 0 |
| Mean | | 1.0288 | 2.6173 | 2.8240 | 1.3753 | 1.5372 | 2.6054 | 2.9218 |
| Std. Deviation | | .16743 | 1.01820 | .69682 | .48469 | .79117 | 1.46966 | 1.22435 |
| Minimum | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Maximum | | 2.00 | 5.00 | 4.00 | 2.00 | 3.00 | 5.00 | 5.00 |

Fig 6.2 depicts the respondent profiles based on the percentage in each category.

**Fig 6.2 Demographic profile of the Customer**




### 6.3 Analysis of the Questionnaire

After the respondent profile and the demographic analysis, the questionnaire is also subjected to see if the data captured in terms of the CRM impacting factors were correct or not. Therefore, the entire questionnaire is explained in the overall statistics using SPSS 15 package.

***6.3.1 Sequence of the Analysis:*** The chapter deals with the analysis of the primary data, which was collected for the study within the area of Customer Relationship Management and impacting factors, which affects the business performance. The development of the questionnaire has already been discussed in the previous chapter. The primary data thus collected using the questionnaire has to be validated using the Analytical techniques as has been hypothesized. In order to present a clear Picture, the results have been presented and arranged in both Tabular and Graphical format for each of the Company separately.

***6.3.2 Reliability and validity:*** Several measures are available to establish the reliability of the measuring instrument. Reliability means "repeatability" or "consistency". A measure is considered reliable if it would give us the same result repeatedly. Reliability is the internal consistency of the measurement, which is the degree of inter correlations among the various item in the instruments that constitute the scale (Nunnally, 1988). In other words, an instrument measures the same way each time it is used under the same condition with the same subjects. In short, it is the repeatability of the measurement. There are two ways that reliability internal consistency estimates reliability by grouping questions in a questionnaire that measure the same concept. One common way of computing correlation values among the questions on the instruments is by using Cronbach's Alpha (Cronbach, 1951). In short, Cronbach's alpha splits all the questions on the instrument every possible way and computes correlation values for them all. Internal consistence is commonly measured as Cronbach's Alpha (based on inter-item correlations) - between 0 (low) and 1 (high). The greater the number of similar items, the greater the internal consistency. If the reliability is not exceptionally high, some of the measurable questions need to be deleted or to be rephrased until such time, reasonable reliability is obtained. In some of the cases, some of the items that have low reliability scores are deleted from the pre-decided cutoff point. If a scale is used to measure a construct has Cronbach's Alpha values greater than 0.70, the scale is considered to be reliable in measuring the construct. (Hair, Anderson, Tatham & Black, 1988, Nunnally, 1978; leedy, 1997). According to (Schuessler, 1971), Cronbach's Alpha value greater than 0.60 is considered good reliability. (While Hair et al., 1998) suggested that Cronbach's Alpha value between 0.6 and 0.7 represents the lower limit of acceptability of the items reliability. In measuring the instruments reliability in this research, Cronbach's Alpha value greater than 0.6 has been considered satisfactory for measurement of the reliability estimates.

***6.3.3 Method of Analysis:*** Many components in the overall CRM environments were considered important in this research on the business performance of Public sector oil companies. These are:

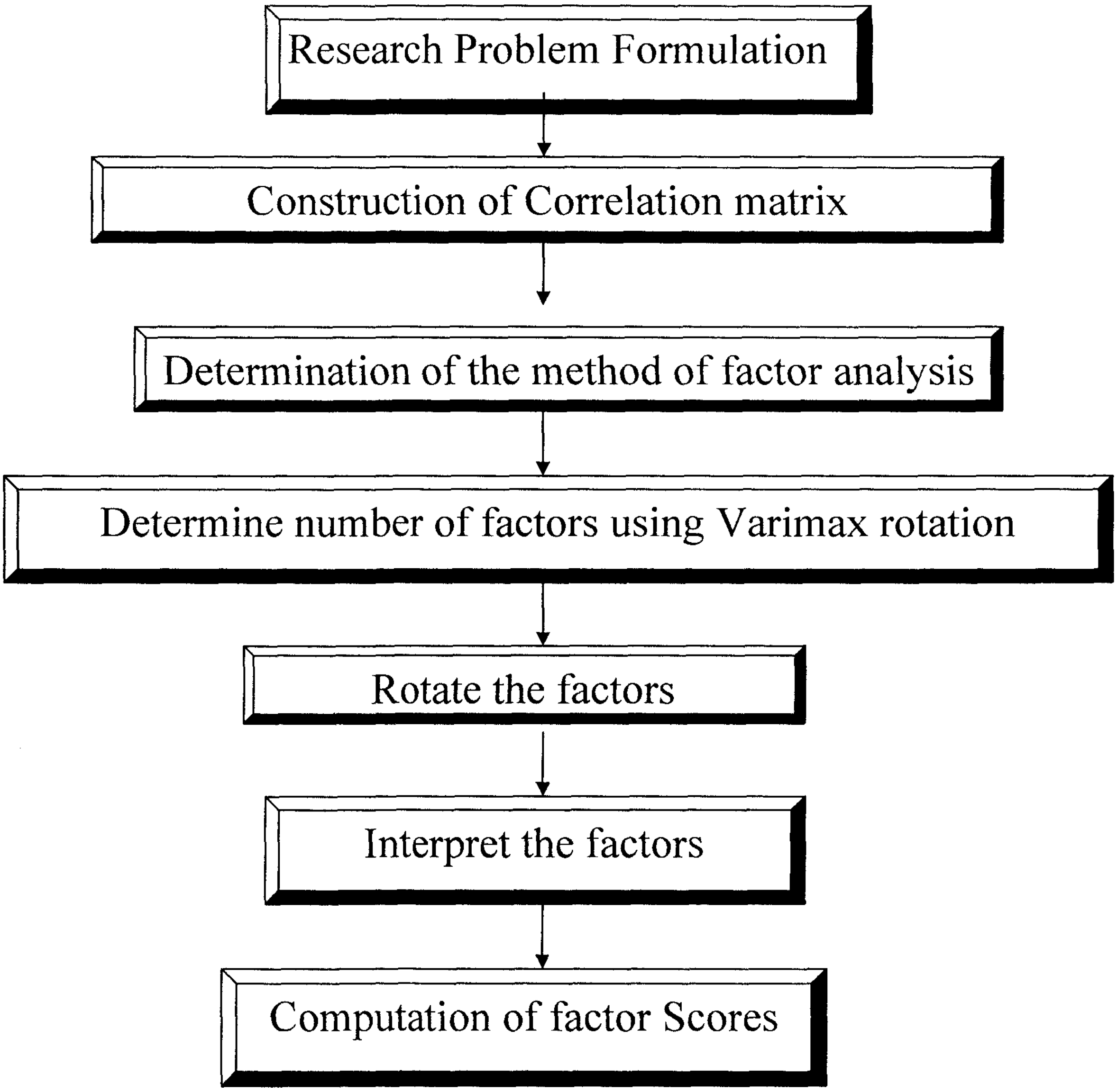
**Table 6.3 Factor affecting CRM at Retail Outlets**

| | | | |
|---|---|---|---|
| 1 | Employees dependability at the outlet | 13 | Newer Fuels |
| 2 | Modern Equipment | 14 | Smooth Entry & Exist |
| 3 | Smooth Transactions | 15 | Modern Dispensing equipment |
| 4 | Knowledge of the Employees | 16 | Dependable Outlet |
| 5 | Accurate Advertisements | 17 | Convenient Operating Hours |
| 6 | Value Added Services | 18 | Product Quality |
| 7 | Outlet Ambience | 19 | Proper Layout |
| 8 | Air Check & Puncher Fitting Equipment | 20 | Good Service |
| 9 | Employees Courtesies. | 21 | Safe Transactions |
| 10 | Convenient Parking | 22 | Credit Cards |
| 11 | Services at the Dispensing Unit | 23 | Reliability |
| 12 | Response to Customer Request | | |

The data was subjected to the Principal component analysis, a method that is broadly categorized under the broader area of factor analysis. All the 23 variables were reduced to the five principal components through varimax rotation method.

The Complete method of factor Analysis has been depicted in fig 6.3.

**Fig: 6.3 Flowchart of Computation of Factor Scores**



The factor scores obtained as result of the factor analysis are tabulated in the table 6.5. Five distinct factors were seen in the component matrix table. The item originally selected were 23 and using the rotated component matrix, these factors were reduced to 23. These 23 items were then seen using the rotated component matrix iterations and 5 distinct factors were seen.

**Table 6.4 Factor affecting CRM- Rotated Component Matrix**

**Rotated Component Matrix [a]**

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| P1 | .557 | | | | |
| P2 | .707 | | | | |
| P3 | .731 | | | | |
| P4 | .556 | | | | |
| P5 | .441 | | | | |
| P6 | .500 | | | | |
| P7 | | .540 | | | |
| P8 | | .461 | | | |
| P9 | | .642 | | | |
| P10 | | .570 | | | |
| P11 | | .648 | | | |
| P12 | | | | .787 | |
| P13 | | | | .786 | |
| P14 | | | | .659 | |
| P15 | | | .525 | | |
| P16 | | | .738 | | |
| P17 | | | .475 | | |
| P18 | | | .665 | | |
| P19 | | | .506 | | |
| P20 | | | | | .672 |
| P21 | | | | | .469 |
| P22 | | | | | .544 |
| P23 | | | | | .555 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 14 iterations.

*6.3.4 Rationale for using Factor Analysis:* The data obtained and verified manually was subjected to the Principal Component Analysis, a method used for achieving the objective of data reduction and interpretation of the components. The method uses linear combinations of the variables to explain the variance- covariance structure of the variable and falls under the broader areas of Exploratory Factor analysis. The twenty-three variables were reduced to the five major components through Varimax rotation method.

Factor Analysis is a multivariate statistical procedure wherein, a multivariate normal random vector defined mean and covariance matrix is reduced to linear combinations of the random variables that represent the rotated coordinate system in the directions that maximize the variability of the data set and are reduced to the set of independent underlying factor.

Principal components analysis (PCA) and factor analysis (FA) are statistical techniques applied to a single set of variables to discover which sets of variables in the set form coherent subsets that are relatively independent of one another. Variables that are correlated with one another which are also largely independent of other subsets of variables are combined into factors. Factors, which are generated, are thought to be representative of the underlying processes that have created the correlations among variables. (Gorusch, 1983).In principal component analysis there are two objectives: data reduction and interpretation of the components. The method uses linear combinations of the variables to explain the variance- covariance structure of the variables

The main applications of factor analytic techniques are: (1) to reduce the number of variables and (2) to detect structure in the relationships between variables, that is to classify variables. Therefore, factor analysis is applied as a data reduction or structure detection method (the term factor analysis was first introduced by Thurstone, 1931). The ultimate goal of factor analysis is to explain the covariance relationships among the variables in terms of some unobservable and non-measurable random factors. Factor Analysis is a means of describing groups of highly correlated variables by a single underlying construct, or factor that is responsible for the observed correlations. Then, once the groups of correlated variables are identified, each of the factor is then labeled.

PCA and FA are exploratory in nature; FA is used as a tool in attempts to reduce a large set of variables to a more meaningful, smaller set of variables. The number of the factors which are to be extracted consecutively depends on the decision when there is only very little "random" variability left. It usually starts with the correlation matrix, where the variances of all variables are equal to 1.0. Therefore, the total variance in that matrix is equal to the number of variables. First, we can retain only factors with eigenvalues greater than 1. This criterion was proposed by (Kaiser, 1960), and is the one most widely used.

Rotation attempts to put the factors in a simpler position with respect to the original variables, which aids in the interpretation of factors. Rotation places the factors into positions that only the variables, which are distinctly related to a factor, will be associated. Varimax, quartimax, and equimax are all orthogonal rotations, while oblique rotations are non-orthogonal. The varimax rotation maximizes the variance of the loadings, and is the most commonly used method. The logic of doing the factor rotation is to clearly identify the factor correlation and the variable value between +1 to -1, which indicated that there is either a positive or a negative association between the two. A zero value (0) indicates clear diversion of the factors.

***6.3.5 VARIMAX Rotation:*** A method for rotating axes of a plot such that the eigenvectors remain orthogonal as they are rotated. These rotations are used in principal component analysis so that the axes are rotated to a position in which the sum of the variances of the loadings is the maximum possible. An orthogonal rotation method that minimizes the number of variables that have high loadings on each factor. This method simplifies the interpretation of the factors. By using Varimax rotation, maximum possible simplification is reached and the loading are placed between +1 and -1. The interpretation is easiest when the variable and the factor co-relation are close to either of the values. It implies that the factors are either positively or negatively correlated. Any value, which is near to the 0, indicates that there is a lack of association and there is a clear-cut separation of the factors.

Factor analysis attempts to identify underlying variables, or factors, that explain the pattern of correlations within a set of observed variables. Factor analysis is often used in data reduction to identify a small number of factors that explain most of the variance that is observed in a much larger number of manifest variables. Factor analysis can also be used to generate hypotheses regarding causal mechanisms or to screen variables for subsequent analysis (for example, to identify collinearity prior to performing a linear regression analysis).Available methods are principal components, unweighted least squares, generalized least squares, maximum likelihood, principal axis factoring, alpha factoring, and image factoring.

In the Research, Principal Components Analysis was used to form uncorrelated linear combinations of the observed variables. The first component has maximum variance. Successive components explain progressively smaller portions of the variance and are all uncorrelated with each other. Principal components analysis is used to obtain the initial factor solution. It can be used when a correlation matrix is singular. Deliberately, Principal Axis Factoring method was not used as it extracts factors from the original correlation matrix, with squared multiple correlation coefficients placed in the diagonal as initial estimates of the communalities. These factor loadings are used as estimate for new communalities that replace the old communality estimates in the diagonal, and the iterations continues until the changes in the communalities from one iteration to the next satisfy the convergence criterion for extraction. In the research problem, the sample was uncorrelated and therefore, there was a need for the Principal Component Analysis. Factor Analysis Scores creates one new variable for each factor in the final solution.

*6.3.6 KMO and Bartlett's Test of Sphericity (Factor Analysis):* The Kaiser-Meyer-Olkin measure of sampling adequacy tests whether the partial correlations among variables are small. Bartlett's test of sphericity tests whether the correlation matrix is an identity matrix, which would indicate that the factor model is inappropriate. Kaiser-Meyer-Olkin (KMO) and Bartlett's Test: The next item from the output is the Kaiser-Meyer-Olkin (KMO) and Bartlett's test. The KMO measures the sampling adequacy, which should be greater than 0.5 for a satisfactory factor analysis to proceed. Also, the Bartlett's test of sphericity is significant. This means that the correlation matrix is not an identity matrix.

Is the strength of the relationship among variables large enough? Is it a good idea to proceed a factor analysis for the data? The Kaiser-Meyer-Olkin measure of sampling adequacy is an index for comparing the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. Large values for the KMO measure indicate that a factor analysis of the variables is a possible option. The Kaiser-Meyer-Olkin measure of sampling adequacy is greater than .775.

Another indicator of the strength of the relationship among variables is Bartlett's test of sphericity. Bartlett's test of sphericity is used to test the null hypothesis that the variables in the population correlation matrix are uncorrelated. The observed significance level is .0000. It is small enough to reject the hypothesis. It is concluded that the strength of the relationship among variables is strong and therefore, we can proceed for factor analysis for the data.

While conducting exploratory factor analysis for the identifying the dimension of the CRM impacting factors in the public sector oil companies, many of the descriptive statistics were used. These include preliminary tests to determine the validity of the factor analysis applied to the factors. Beside this, the anti-imaging correlation matrix, (The anti-image correlation matrix contains the negatives of the partial correlation coefficients, and the anti-image covariance matrix contains the negatives of the partial covariance. In a good factor model, most of the off-diagonal elements will be small. The measure of sampling adequacy for a variable is displayed on the diagonal of the anti-image correlation matrix), KMO and Bartlett's Test of Sphericity. (The Kaiser-Meyer-Olkin measure of sampling adequacy tests (MSA) whether the partial correlations among variables are small. Bartlett's test of sphericity tests whether the correlation matrix is an identity matrix, which would indicate that the factor model is inappropriate.)

In factor analysis, some degree of multicollinearity is desirable as it identifies interrelated set of variables, and therefore, if there is a partial correlation among variables, then the common factor between them can be easily identifiable, using the varimax rotation. The anti-image correlation matrix contains the negative values of the partial correlation among the variables. Small the anti-image correlations, it indicates that the data matrix is suited to factor analysis. Bartlett's test identifies the correlation among the variables. It also identifies the statistical probability, that some of the variable at least have significant correlation among the variables. The Analysis showed the following results:

**Table 6.5 KMO and Bartlett's Test**

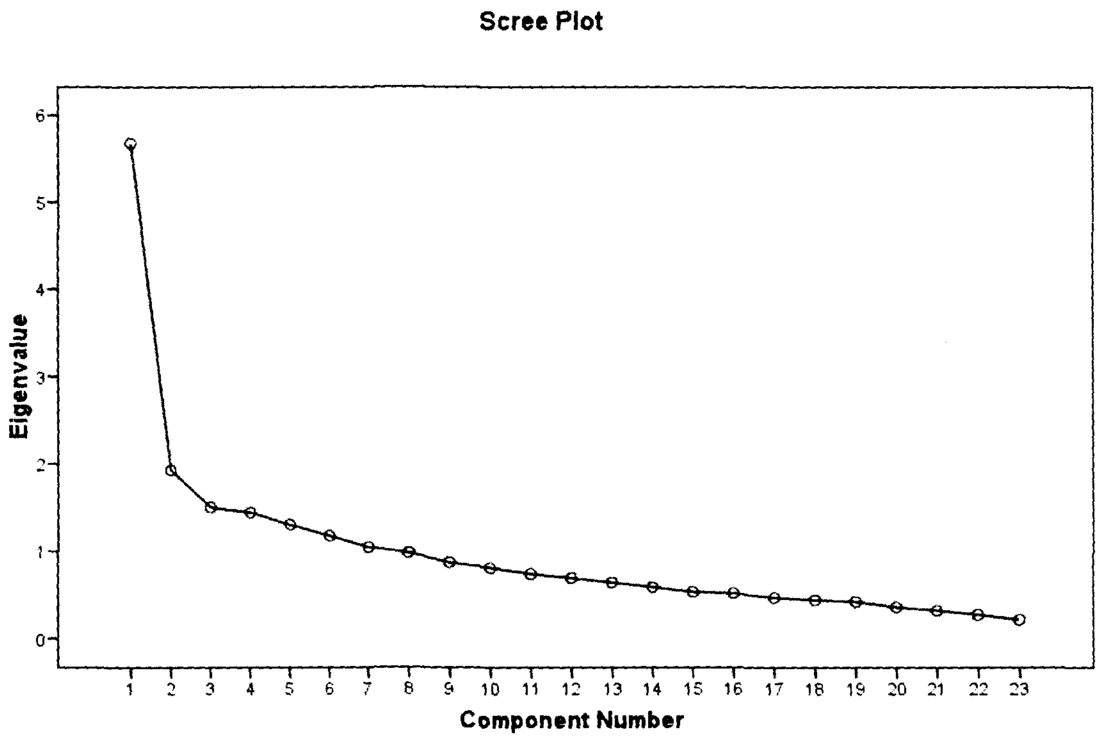
**KMO and Bartlett's Test**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .775 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 3213.466 |
| | df | 253 |
| | Sig. | .000 |

This suggested that the sample was sufficient to take the further analysis.

*6.3.7 Scree test:* A graphical method is the scree test first proposed by Cattell (1966), which plots the eigenvalues in a simple line plot. Cattell finding suggest the place where the smooth decrease of eigenvalues appears to level off to the right of the plot. To the right of this point, presumably, one finds only "factorial scree" -- "scree" is the geological term referring to the debris, which collects on the lower part of a rocky slope. A plot of the variance that is associated with each factor. This plot is used to determine how many factors should be kept. Typically, the plot shows a distinct break between the steep slope of the large factors and the gradual trailing of the rest (the scree). According to this criterion, five factors were identified in our research.

**Fig 6.4 Scree Plot for Factor Analysis**



As seen from the graph, five factors clearly emerged as the component. Depending on the weightage of the factors obtained in the Scree plot, these factors have been named as:

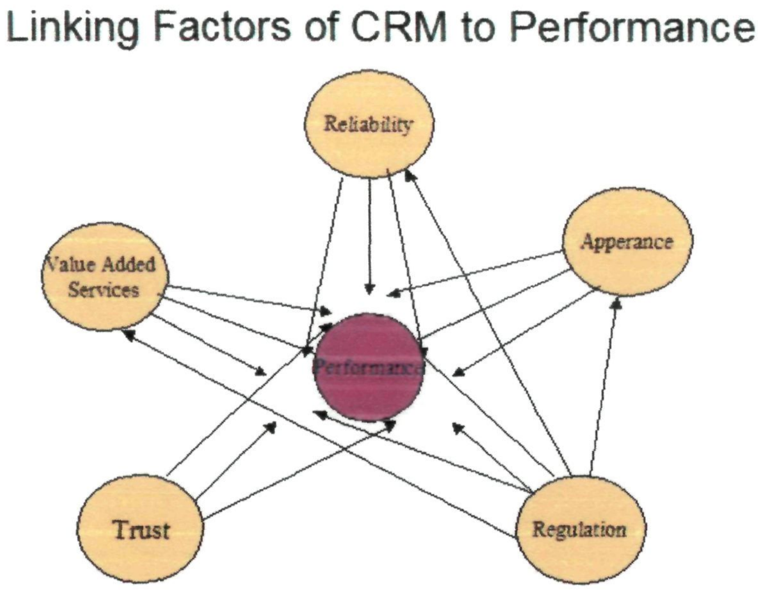
1. Reliability (RELA)
2. Appearance (APP)
3. Regulation (REGU)
4. Trust (TRUS)
5. Value added services. (VAS)

**Table 6.6 The Factor scores and the Component Matrix**

| | | Rotated Component Matrix(a) | | | | | |
|---|---|---|---|---|---|---|---|
| | | | Component | | | | |
| | **Statements** | | **RELA** | **APP** | **REGU** | **TRUS** | **VAS** |
| | **RELIABILITY ( RELA)** | **SYMBOL** | | | | | |
| 1 | Employees of this outlet are dependable | DEPNDLE | 0.56 | | | | |
| 2 | Outlet which has modern equipment | MODEQIP | 0.71 | | | | |
| 3 | Error free sales transactions and records | ERRTRAN | 0.73 | | | | |
| 4 | Ability of the employees to answer customer questions / knowledge of the employees | EMPKNOW | 0.56 | | | | |
| 5 | Accurate information in the advertisements | ACCADVT | 0.44 | | | | |
| 6 | Availability of value added services (e.g. convenience stores, ATM etc) | AVBLVAS | 0.50 | | | | |
| | **APPEARANCE** | | | | | | |
| 7 | Up to date Air check & puncher fitting equipment | UPDEQUIP | | 0.54 | | | |
| 8 | Improvement of Ambience of an outlet | IMPAMBN | | 0.46 | | | |
| 9 | Employees are consistently courteous with customers | EMPCOUT | | 0.64 | | | |
| 10 | convenient parking for customers at the outlet | CONPARK | | 0.57 | | | |
| 11 | All services should be delivered at the dispensing unit | SERVISL | | 0.65 | | | |
| | **REGULATION** | | | | | | |
| 12 | Prompt response to customer request | PROREQT | | | 0.79 | | |
| 13 | Company which produces products which fit newer vehicles | NEWFUEL | | | 0.79 | | |
| 14 | Smooth entry & exist | SMTHENT | | | 0.66 | | |
| | **TRUST** | | | | | | |
| 15 | Outlet with a digital refueling dispenser | DIGDISP | | | | 0.53 | |
| 16 | Dependable outlet | DEPDOUT | | | | 0.74 | |
| 17 | Convenient operating hours | CONOPTG | | | | 0.48 | |
| 18 | Consistent product quality | PRODQLY | | | | 0.67 | |
| 19 | Proper layout of the Fuel outlet which helps in easy accessibility of various services | PROLAYT | | | | 0.51 | |
| | **VALUE ADDED SERVICES** | | | | | | |
| 20 | Good service offered | GOODSER | | | | | 0.67 |
| 21 | Safe transactions | SAFTRAN | | | | | 0.47 |
| 22 | Major credit cards accepted as mode of payment | CRDTCAR | | | | | 0.54 |
| 23 | Reliability of the company | RELICOM | | | | | 0.56 |

These five broad factors were further divided into components of measurability of performance in the designed questionnaire as depicted in the fig.

**Fig 6.5 CRM Factors linking to Performance**




To see whether these factors were reliable and can be used for further statistical reliability, reliability test were carried out for the inter item co-relation reliability and overall reliability of the statements, using Cronbach's Alpha values.

**Table 6.7 Calculation for Reliability Analysis**

| Case Processing Summary | | | |
|---|---|---|---|
| | | N | % |
| Cases | Valid | 468 | 96.3 |
| | Excluded(a) | 18 | 3.7 |
| | Total | 486 | 100.0 |
| a. List wise deletion based on all variables in the procedure. | | | |

**Table 6.8 Reliability Stastistics of the Questionaire**

| Reliability Statistics | |
|---|---|
| Cronbach's Alpha | N of Items |
| 0.852 | 23 |

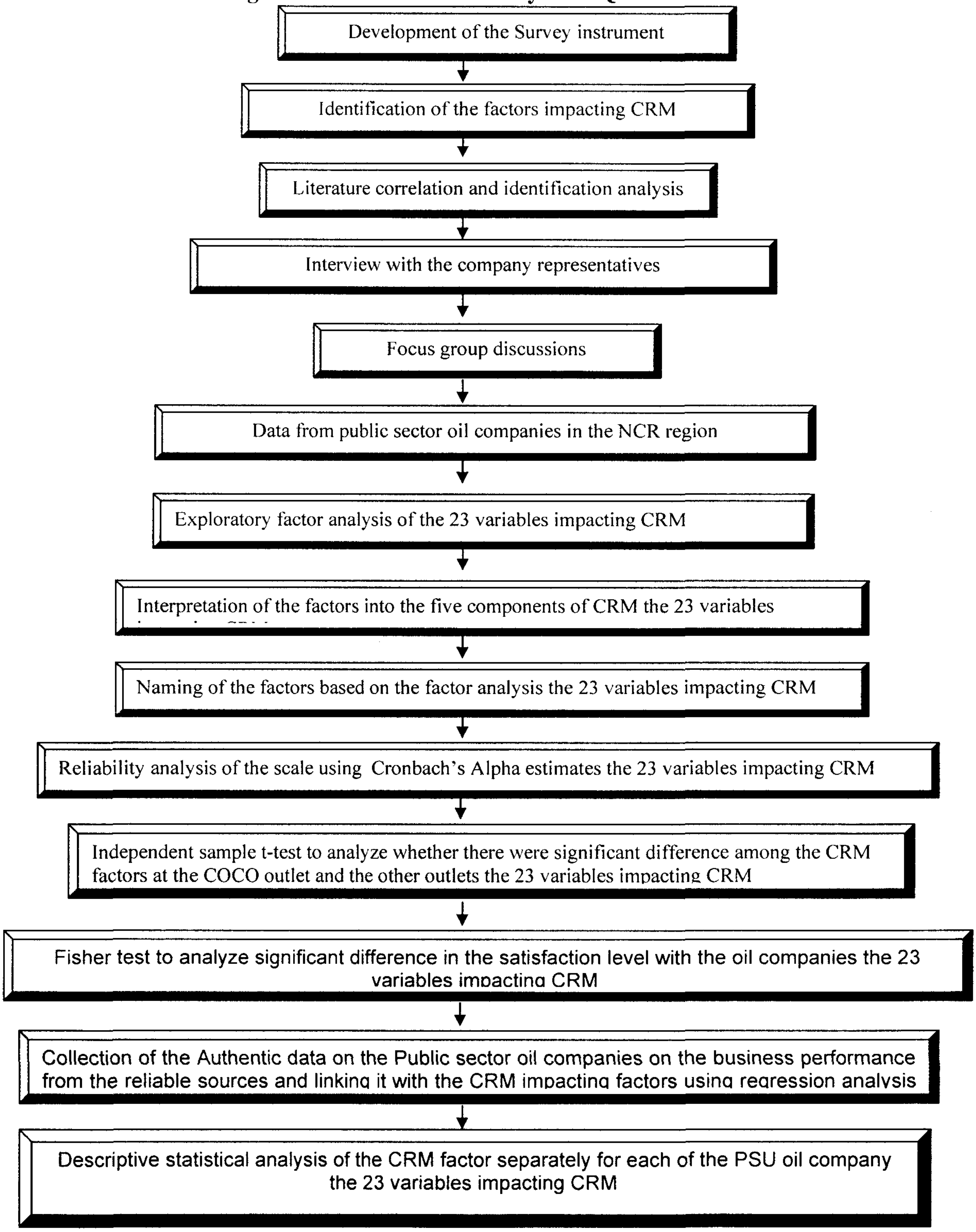
The inter item values of Cronbach's Alpha values are summarized in table

**Table 6.9 Factor statements and Relaibility Statistics**

| Factor | RELIABILITY | Cronbach's Alpha | N of Items |
|---|---|---|---|
| Factor-1 | /VARIABLES=P1 P2 P3 P4 P5 P6 | 0.731 | 6 |
| Factor-2 | /VARIABLES=P7 P8 P9 P10 P11 | 0.707 | 5 |
| Factor-3 | /VARIABLES=P12 P13 P14 | 0.741 | 3 |
| Factor-4 | /VARIABLES=P15 P16 P17 P18 P19 | 0.635 | 5 |
| Factor-5 | /VARIABLES=P20 P21 P22 P23 | 0.528 | 4 |

Since the alpha values are more than 0.7 in three components and each of the factor except the factor on trust and value added service (> 0.5), and the overall reliability of the statements is 0.852, we considered the questionnaire reliable and valid.

**Fig 6.6 Flowchart of the Analysis of Questionaire**



### 6.4 Performance Relationship

The Analysis of the entire research has been done at three levels:

1. At the Customer Level
2. At the Company Level.
3. At the Outlet level

In order to arrive at a meaningful relationship at the above levels following test were used:

***6.4.1 Regression analysis of the data:*** The relevance of the statistic was seen to measure three components as mentioned earlier:

In statistics, regression analysis is a technique, which examines the relation of a dependent variable (response variable) to specified independent variables (explanatory variables). Regression analysis can be used as a descriptive method of data analysis (such as curve fitting) without relying on any assumptions about underlying processes generating the data.

When paired with assumptions in the form of a statistical model, regression can be used for prediction (including forecasting of time-series data), inference, hypothesis testing, and modeling of causal relationships. These uses of regression rely heavily on the model assumptions being satisfied. Regression analysis has been criticized as being misused for these purposes in many cases where the appropriate assumptions cannot be verified to hold.

One factor contributing to the misuse of regression is that it can take considerably more skill to comment on a model than to fit a model.

The key relationship in a regression is the regression equation. A regression equation contains regression parameters whose values are estimated using data. The estimated parameters measure the relationship between the dependent variable and each of the independent variables. When a regression model is used, the dependent variable is modeled as a random variable because of either uncertainty as to its value or inherent variability. The data are assumed sample from a probability distribution, which is usually assumed to be a normal distribution.

The general form of a simple linear regression is

$$y_i = \alpha + \beta x_i + \varepsilon$$

Where $\alpha$ is the intercept, $\beta$ is the slope, and $\varepsilon$ is the error term, which picks up the unpredictable part of the response variable yi. The error term is usually positive to be normally distributed. The x's and y's are the data quantities from the sample or population in question, and $\alpha$ and $\beta$ are the unknown parameters ("constants") to be estimated from the data. Estimates for the values of $\alpha$ and $\beta$ can be derived using SPSS package.

***6.4.2 Regression diagnostics:*** Once a regression model has been constructed, it is important to confirm the goodness of fit of the model and the statistical significance of the estimated parameters. Commonly used checks of goodness of fit include R-squared, analyses of the pattern of residuals and construction of an ANOVA table. Statistical significance is checked by an F-test of the overall fit, followed by t-tests of individual parameters. Interpretations of these diagnostics rest heavily on the model assumptions. Although examination of the residuals can be used to invalidate a model, the results of a t-test or F-test are meaningless unless the modeling assumptions are satisfied.

Dependent and independent variables refer to values that change in relationship to each other. The dependent variables are those that are observed to change in response to the independent variables. The independent variables are those that are deliberately manipulated to invoke a change in the dependent variables. In short, "if x is given, then y occurs", where x represents the independent variables and y represents the dependent variables.

Depending on the context, independent variables are also known as predictor variables, regressors, controlled variables, manipulated variables, or explanatory variables. The dependent variable is also known as the response variable, the regress and, the measured variable, the responding variable, the explained variable, or the outcome variable.

In statistics, the coefficient of determination $R^2$ is the proportion of variability in a data set that is accounted for by a statistical model. There is no consensus about the exact definition of $R^2$. Only in the case of linear regression, all definitions are equivalent. In this case, $R^2$ is simply the square of a correlation coefficient.

***6.4.3 Interpretation:*** $R^2$ is a statistic that will give some information about the goodness of fit of a model. In regression, the $R^2$ coefficient of determination is a statistical measure of how well the regression line approximates the real data points. An $R^2$ of 1.0 indicates that the regression line perfectly fits the data. In some (but not all) instances where $R^2$ is used, the predictors are calculated by ordinary least-squares regression: that is, by minimizing SSE. In this case, R-squared increases as we increase the number of variables in the model (R-squared will not decrease). This illustrates a drawback to one possible use of $R^2$, where one might try to include more variables in the model until "there is no more improvement". This leads to the alternative approach of looking at the adjusted $R^2$. The explanation of this statistic is almost the same as R-squared but it penalizes the statistic, as extra variables are included in the model. For cases other than fitting by ordinary least squares, the $R^2$ statistic can be calculated as above and may still be a useful measure. However, the conclusion that that R-squared increases with extra variables no longer holds, but downward variations are usually small. If fitting is by weighted least squares or generalized least squares, alternative versions of R2 can be calculated appropriate to those statistical frameworks, while the "raw" $R^2$ may still be useful if it is more easily interpreted. Values for $R^2$ can be calculated for any type of predictive model, which need not have a statistical basis.

More simply, $R^2$ is often interpreted as the proportion of response variation "explained" by the regressors in the model. Thus, $R^2 = 1$ indicates that the fitted model explains all variability in y, while $R^2 = 0$ indicates no 'linear' relationship between the response variable and regressors. A caution that applies to $R^2$, as to other statistical descriptions of correlation and association is that "correlation does not imply causation." In other words, while correlations may provide valuable clues regarding causal relationships among variables, a high correlation between two variables does not represent adequate evidence that changing one variable has resulted, or may result, from changes of other variables.

In case of a single regressor, fitted by least squares, $R^2$ is the square of the Pearson product-moment correlation coefficient relating the regressor and the response variable. More generally, R2 is the square of the correlation between the constructed predictor and the response variable.

***6.4.4 Adjusted $R^2$*** : Adjusted $R^2$ is a modification of $R^2$ that adjusts for the number of explanatory terms in a model. Unlike $R^2$, the adjusted $R^2$ increases only if the new term improves the model more than would be expected by chance. The adjusted $R^2$ can be negative, and will always be less than or equal to $R^2$.

A statistical error is the amount by which an observation differs from its expected value; the latter being based on the whole population from which the statistical unit was chosen randomly. The expected value, being for instance the mean of the entire population, is typically unobservable. A residual (or fitting error), on the other hand, is an observable estimate of the unobservable statistical error.

***6.4.5 Analysis of Variance:*** In statistics, analysis of variance (ANOVA) is a collection of statistical models, and their associated procedures, in which the observed variance is partitioned into components due to different explanatory variables. The initial techniques of the analysis of variance were developed by the statistician and geneticist R. A. Fisher in the 1920s and 1930s, and is sometimes known as Fisher's ANOVA or Fisher's analysis of variance, due to the use of Fisher's F-distribution as part of the test of statistical significance.

In practice, there are several types of ANOVA depending on the number of treatments and the way they are applied to the subjects in the experiment:

One-way ANOVA is used to test for differences among two or more independent groups. Typically, however, the One-way ANOVA is used to test for differences among three or more groups, with the two-group case relegated to the t-test (Gossett, 1908), which is a special case of the ANOVA. The relation between ANOVA and t is given as $F = t^2$.

One-way ANOVA for repeated measures is used when the subjects are subjected to repeated measures; this means that the same subjects are used for each treatment. Note that this method can be subject to carryover effects.

When one wishes to test two or more independent groups subjecting the subjects to repeated measures, one may perform a factorial mixed-design ANOVA, in which one factor is independent and the other is repeated measures. This is a type of mixed effect model.

An F-test is any statistical test in which the test statistic has an F-distribution if the null hypothesis is true. The hypothesis that the means of multiple normally distributed populations, all having the same standard deviation, are equal. This is perhaps the most well known of hypotheses tested by means of an F-test, and the simplest problem in the analysis of variance (ANOVA). The hypothesis that the standard deviations of two normally distributed populations are equal, and thus they are of comparable origin.

In many cases, the F-test statistic can be calculated through a straightforward process. Two regression models are required, one of which constrains one or more of the regression coefficients according to the null hypothesis.

A t-test is any statistical hypothesis test in which the test statistic has a Student's t distribution if the null hypothesis is true. It is applied when sample sizes are small enough that using an assumption of normality and the associated z-test leads to incorrect inference.

If the p-value that is calculated is below the threshold chosen for statistical significance (usually the 0.05 level), then the null hypothesis that the two groups do not differ is rejected in favor of an alternative hypothesis, which typically states that the groups do differ. Once a t value is determined, a P value can be found using a table of values from Student's t-distribution.

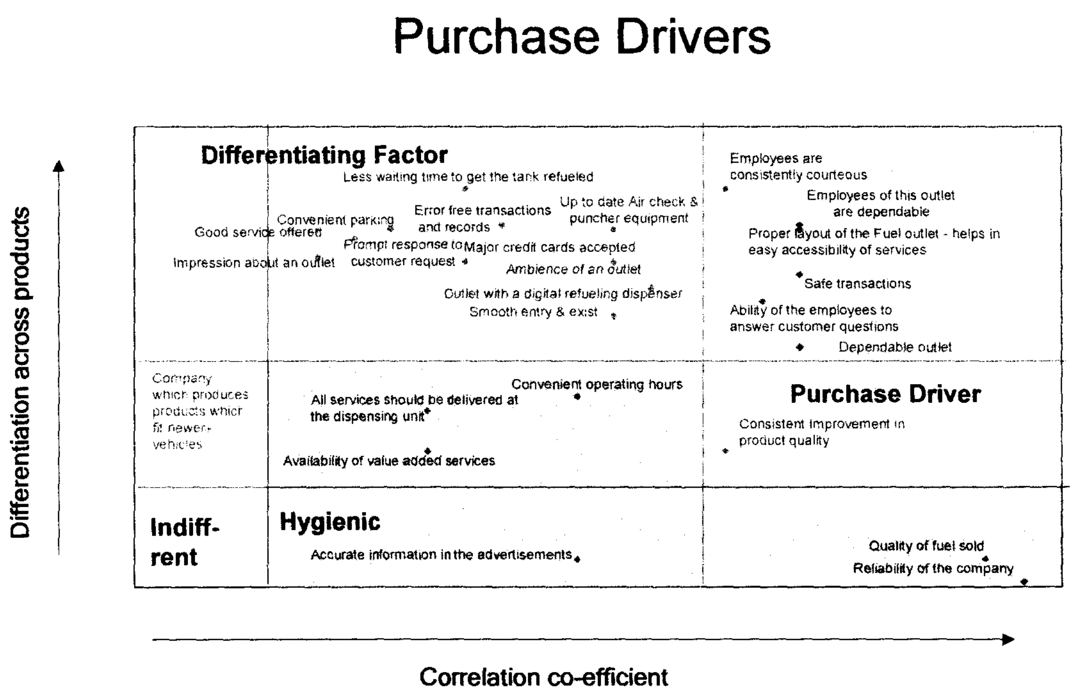
In statistics, Levene's test is an inferential statistic used to assess the equality of variance in different samples. Some common statistical procedures assume that variances of the populations from which different samples are drawn are equal. Levene's test assesses this assumption. It tests the null hypothesis that the population variances are equal. If the resulting p-value of Levene's test is less than some critical value (typically .05), the obtained differences in sample variances are unlikely to have occurred based on random sampling. Thus, the null hypothesis of equal variances is rejected and it is concluded that there is a difference between the variances in the population.

p-value is the probability of obtaining a result at least as extreme as a given data point, under the null hypothesis. The fact that p-values are based on this assumption is crucial to their correct interpretation .More technically, a p-value of an experiment is a random variable defined over the sample space of the experiment such that its distribution under the null hypothesis is uniform on the interval. Generally, one rejects the null hypothesis if the p-value is smaller than or equal to the significance level, often represented by the Greek letter α (alpha). If the level is 0.05, then the results are only 5% likely to be as extraordinary as just seen, given that the null hypothesis is true.

## 6.5 CRM at the Customer Level

The Analysis at this level shall be confined to the identification of the factors, which are the CRM impacting factors viewed at the customer level. In this analysis, the respondents have filled the questionnaire and the same data was analyzed.

**Fig 6.7 Identification of the Purchase Drivers at Retail Outlet**




**CRM is the key driver for Purchase & also the key differentiation factor**

The Correlation co-efficient of the 23 factors were calculated and they were differentiated in to the four critical factors as viewed by the customers:

1. The Hygienic Factor: These are the factors, without which the customers will not even consider the Retail outlet for the transactions. Therefore, following factors emerged as the hygiene factors as rated by the customers:

    a. Quality of the fuel sold.
    b. Reliability of the company
    c. Convenient operating hours
    d. Delivery of services at the dispensing units
    e. Availability of Value added services.

2. The Purchase Drivers: The following factors emerged as the purchase drivers, which customers look before initiating the buying process.
    a. Employees courteousness
    b. Employees dependability
    c. Safe transactions
    d. Ability of employees to answer customer questions
    e. Dependable outlet
    f. Proper layout of the fuel outlet
3. The Differentiating factors: These factors differentiate one outlet from other and the customers look at the factors in the process of making decision for buying fuels.
    a. Waiting time at the outlet
    b. Error free transactions
    c. Equipment and their upkeep
    d. Convenient parking
    e. Acceptance of credit cards
    f. Ambience of the outlet
    g. Smooth entry and exit
    h. Impression of the outlet

i. Good services

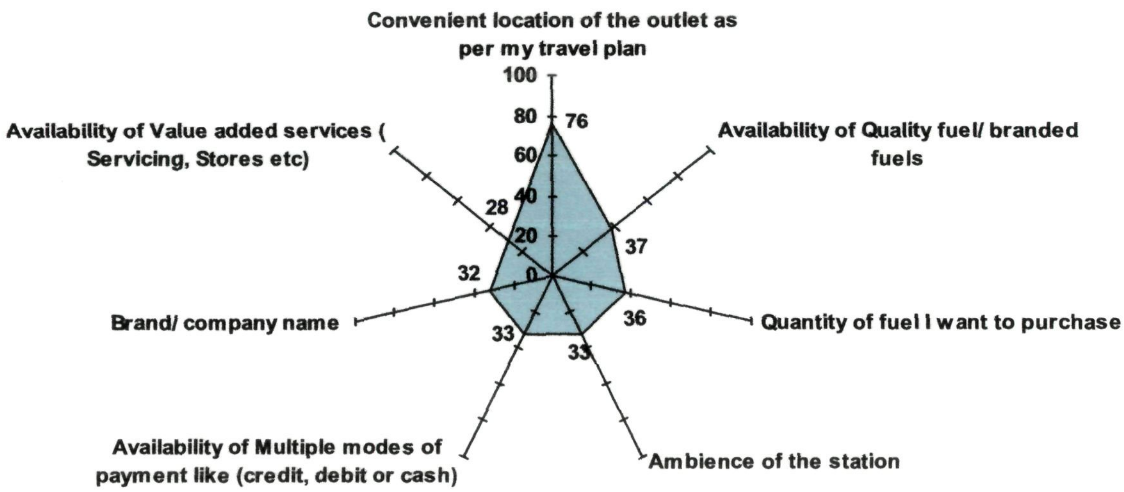
j. Response to the customers seeking information.

. Digital Dispensing equipments

4. Indifferent: The customer is neutral to the company's efforts in producing products, which fits newer vehicles. It implies that the company's is self regulated to the marketing environment and shall respond to market stimuli and customers need not bother about these regulations.

During the analysis, it was seen that the customers have given preference to the 7 factors, which was identified during the ranking process. These factors were then ranked and the graph 6.8 shown below shows the ranking and weightage of the factors:

**Fig 6.8 Factors Identified by Customer critical for Petro- buying decision**



As can bee seen from the Graph, that the 76% of the respondents indicated that the location of the outlets in falls conveniently into the travel plan and taking into account the purchase drivers should enable him to buy fuels from the retail outlet. Also, the ranking indicated the following factors responsible for the buying decision process for the customer. The method of arriving these factors have already been explained in chapter...

**Table 6.10 Buying factors as Ranked by the Customers**

| Ranked factors | % Preference |
|---|---|
| Convenient location of the outlet as per my travel plan | 76 |
| Availability of Quality fuel/ branded fuels | 37 |
| Quantity of fuel I want to purchase | 36 |
| Ambience of the station | 33 |
| Availability of Multiple modes of payment like (credit, debit or cash) | 33 |
| Brand/ company name | 32 |
| Availability of Value added services ( Servicing, Stores etc) | 28 |

### 6.6 CRM at the Company Level

In order to arrive at the impact of the five CRM factors on the business performance of the PSU companies, the mean scores for each of the company was on each of the individual component of the retail outlet. The Mean score of the same is enclosed for each company and each outlet as follows:

**Table 6.11 Outlet-wise Mean Score on various Dimestion for the Companies**

| | | Mean | | | | |
|---|---|---|---|---|---|---|
| | Outlet | REL | APP | REG | Trust | VAS |
| HPC | 1.0000 | 4.1255 | 4.1136 | 4.2428 | 4.1383 | 4.1512 |
| | 1.0000 | 4.4000 | 4.3200 | 4.4000 | 4.5200 | 4.4500 |
| | 2.0000 | 4.6000 | 4.3600 | 4.5333 | 4.4800 | 4.1000 |
| | 3.0000 | 4.5000 | 4.3200 | 4.4667 | 4.3200 | 4.5000 |
| | 4.0000 | 4.4000 | 4.6000 | 4.4667 | 4.2400 | 4.5000 |
| | 5.0000 | 4.2333 | 4.3200 | 4.4000 | 4.3200 | 4.3500 |
| | 6.0000 | 4.2000 | 4.1600 | 4.9333 | 4.3600 | 4.0500 |
| | 7.0000 | 4.2333 | 4.2800 | 4.6000 | 4.4000 | 4.1000 |
| | 8.0000 | 4.2333 | 4.2800 | 4.6000 | 4.4000 | 4.0500 |
| | 9.0000 | 3.5667 | 3.4800 | 3.6000 | 3.4400 | 3.8000 |
| | 10.0000 | 3.4667 | 3.1600 | 4.0000 | 4.0800 | 3.9500 |
| | 11.0000 | 3.5333 | 3.6800 | 3.1333 | 3.3200 | 3.8500 |
| | 12.0000 | 3.8889 | 3.6000 | 4.0000 | 3.7667 | 3.8333 |
| | 13.0000 | 3.6667 | 4.0000 | 3.6667 | 3.6667 | 3.8333 |
| | 14.0000 | 4.3889 | 4.4667 | 4.5556 | 4.4333 | 4.3333 |
| | 15.0000 | 4.4583 | 4.5000 | 4.3333 | 4.3250 | 4.4688 |
| | | | | | | |
| IOC | 2.0000 | 3.8559 | 3.7784 | 3.8108 | 3.7730 | 3.7770 |
| | 1.0000 | 3.8889 | 3.8000 | 4.1111 | 3.7333 | 3.4167 |
| | 2.0000 | 3.8333 | 3.7333 | 3.7778 | 3.9333 | 3.5000 |
| | 3.0000 | 3.9444 | 3.6000 | 4.2222 | 4.1333 | 4.0833 |
| | 4.0000 | 4.3333 | 4.0000 | 3.6667 | 4.1000 | 3.8750 |
| | 5.0000 | 3.5833 | 3.1000 | 4.0000 | 4.2000 | 4.1250 |
| | 6.0000 | 4.0000 | 3.7000 | 4.0000 | 3.2000 | 3.6250 |
| | 7.0000 | 3.9167 | 4.2000 | 4.0000 | 3.7000 | 3.6250 |
| | 8.0000 | 3.8333 | 3.8000 | 3.6667 | 3.6000 | 3.7500 |
| | 9.0000 | 4.0000 | 4.0000 | 3.3333 | 3.8000 | 4.0000 |
| | 10.0000 | 3.2500 | 3.6000 | 3.6667 | 3.7000 | 4.0000 |
| | 11.0000 | 3.9167 | 3.6000 | 3.6667 | 3.7000 | 3.7500 |
| | 12.0000 | 3.8333 | 3.9333 | 3.6667 | 3.6667 | 3.5833 |
| | 13.0000 | 3.8333 | 3.8667 | 3.8889 | 3.7333 | 3.5833 |
| | 14.0000 | 3.8333 | 3.8000 | 3.4444 | 3.8000 | 3.8333 |
| | 15.0000 | 3.8333 | 3.8667 | 3.8889 | 3.5333 | 4.0833 |
| | | | | | | |
| BPC | 3.0000 | 4.0909 | 4.0545 | 4.0833 | 3.9909 | 4.0455 |
| | 1.0000 | 4.5333 | 4.6400 | 4.3333 | 4.4800 | 4.4500 |
| | 2.0000 | 4.5000 | 4.4400 | 4.6667 | 4.3200 | 4.5000 |
| | 3.0000 | 4.3333 | 4.1000 | 4.3889 | 4.3333 | 4.3333 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 4.0000 | 4.1667 | 4.1000 | 4.1667 | 4.1000 | 4.1250 |
| | 5.0000 | 3.8333 | 3.8000 | 4.1667 | 4.5000 | 3.8750 |
| | 6.0000 | 4.2500 | 3.8000 | 4.1667 | 3.6000 | 3.8750 |
| | 7.0000 | 3.4167 | 3.7000 | 3.3333 | 3.9000 | 3.3750 |
| | 8.0000 | 3.4167 | 4.1000 | 4.1667 | 3.6000 | 3.7500 |
| | 9.0000 | 3.9167 | 4.1000 | 3.8333 | 3.7000 | 4.0000 |
| | 10.0000 | 3.5833 | 3.8000 | 3.5000 | 3.6000 | 4.0000 |
| | 11.0000 | 4.3333 | 4.0000 | 3.1667 | 3.0000 | 3.3750 |
| | 12.0000 | 4.2222 | 3.8667 | 3.6667 | 3.9333 | 3.5000 |
| | 13.0000 | 3.6667 | 3.5333 | 4.3333 | 3.8000 | 4.0833 |
| | 14.0000 | 3.8333 | 3.8667 | 3.7778 | 3.7333 | 4.2500 |
| | 15.0000 | 3.9444 | 3.9333 | 4.0000 | 3.7333 | 3.6667 |

The average scores were than calculated for each of the company along with the average sales.

**Table 6.12 Mean Score on various Dimestion for the Companies**

| Company | N | REL | APP | REG | Trust | VAS | Average |
|---|---|---|---|---|---|---|---|
| HPC | 243.0000 | 4.1255 | 4.1136 | 4.2428 | 4.1383 | 4.1512 | 4.1543 |
| IOC | 111.0000 | 3.8559 | 3.7784 | 3.8108 | 3.7730 | 3.7770 | 3.7990 |
| BPC | 132.0000 | 4.0909 | 4.0545 | 4.0833 | 3.9909 | 4.0455 | 4.0530 |

Null Hypothesis

| | |
|---|---|
| $H_{01}$ | There is no difference between the Three companies. |

The Means score of the three companies were calculated, and it can be seen that the Mean difference of Company 1, Company 2 and Company 3 are all different. Therefore, that the three companies are different.

**The null Hypothesis is rejected.**

## 6.7 Overall Difference between the Category of Outlets impacting Performance

Since the CRM factors affected the sales performance, it was important calculate the significance of these factors in the context of operation of the company. Since the company is selling the product using its retail outlet, it was important to see, which categories of the outlet are significantly affected by these factors. Using this test, we have measured the significant difference between the COCO outlets and the Dealer owned outlet. (For sake of convenient, these outlets have been written as Others in the Analysis part only)

Hypothesis:

| | |
|---|---|
| $H_{02}$ | There in no difference among category of on CRM impacting factors |
| $H_{021}$ | There in no difference among category of outlets on Relationship dimension |
| $H_{022}$ | There in no difference among category of outlets on Appearance Dimension. |
| $H_{023}$ | There in no difference among category of outlets on Regulation dimension. |
| $H_{024}$ | There in no difference among category of outlets onTrust dimension. |
| $H_{025}$ | There in no difference among category of outlets on Value Added Service Dimension. |

### 6.7.1 Comparision between COCO and Dealer Operated outlets

From the questionnaire, the two categories of the outlets were grouped as:

- COCO ( Company Owned and Company Operated)
- Others (Dealer Operated)

It was important to see, if the customer see any significant different between the category of the outlets.

#### *6.7.1.1 t-test for comparison of Reliability Dimension between COCO and Others outlet*

**Null Hypothesis**

| | |
|---|---|
| $H_{021}$ | There in no difference among category of outlets on Relationship dimension |

Table 6.13 t-test for - Reliability

| | Number of Cases | Mean | Standard Deviation | Standard Error | t -Value |
|---|---|---|---|---|---|
| COCO | 120 | 4.34 | 0.355 | 0.032 | 9.51** |
| | | | | | |
| OTHERs | 366 | 3.96 | 0.451 | 0.024 | |
| | | | | | |

** Significant at 0.01 level

The t-value is 9.51, which is significant. As can been seen that the mean value for COCO is 4.34 compared to dealers owned outlets having value of 3.96. There is a significant difference between the COCO outlets and dealer owned outlet on reliability dimension. This implies that the respondents see a visible difference between these two categories of outlets on reliability and considers COCO more reliable.

**The null hypothesis is rejected**

*6.7.1.2 t-test for comparison of Appearance Dimension between COCO and dealer managed outlet*

**Null Hypothesis**

| | |
|---|---|
| $H_{022}$ | There in no difference among category of outlets on Appearance Dimension. |

**Table 6.14: t-test for: APPEARANCE**

| | Number of Cases | Mean | Standard Deviation | Standard Error | t -Value |
|---|---|---|---|---|---|
| COCO | 120 | 4.21 | 0.355 | 0.402 | 5.61** |
| | | | | | |
| OTHERs | 366 | 3.96 | 0.451 | 0.491 | |
| | | | | | |

** Significant at 0.01 level

The t-value is 5.61, which is significant. As can been seen that the mean value for COCO is 4.21 compared to dealers owned outlets having value of 3.96. There is a significant difference between the COCO outlets and dealer owned outlet on Appearance dimension. This implies that the respondents see a visible difference between these two categories of outlets on appearance and considers COCO more attractive and visually appealing.

**The null hypothesis is rejected.**

*6.7.1.3 t-test for comparison of Regulation Dimension between COCO and dealer managed outlet*

**Null Hypothesis**

| | |
|---|---|
| $H_{023}$ | There in no difference among category of outlets on Regulation dimension. |

Table 6.15: t-test for: REGULATION

| | Number of Cases | Mean | Standard Deviation | Standard Error | t -Value |
|---|---|---|---|---|---|
| COCO | 120 | 4.37 | 0.365 | 0.033 | 7.89** |
| | | | | | |
| OTHERs | 366 | 4.01 | 0.571 | 0.030 | |
| | | | | | |

** Significant at 0.01 level

The t-value is 7.89, which is significant. As can been seen that the mean value for COCO is 4.37 compared to dealers owned outlets having value of 4.01. Compared to reliability and Appearance, there is slightly less difference between the COCO outlets and dealer owned outlet on Regulation dimension. This is also true from the fact that the product supplied by the company to the two categories of the outlets is not differentiated and company maintains the same product portfolio while making supplies.

**The null hypothesis is rejected.**

### *6.7.1.4 t-test for comparison of Trust Dimension between COCO and dealer managed outlet*

**Null Hypothesis**

| | |
|---|---|
| $H_{024}$ | There in no difference among category of outlets on Trust dimension. |

**Table 6.16 t-test for - Trust**

| | Number of Cases | Mean | Standard Deviation | Standard Error | t - Value |
|---|---|---|---|---|---|
| **COCO** | 120 | 4.30 | 0.342 | 0.031 | 9.50** |
| | | | | | |
| **OTHERs** | 366 | 3.92 | 0.475 | 0.025 | |

**** Significant at 0.01 level**

The t-value is 9.50, which is significant. As can been seen that the mean value for COCO is 4.34 compared to dealers owned outlets having value of 3.96. There is a significant difference between the COCO outlets and dealer owned outlet on reliability dimension. This implies that the respondents see a visible difference between these two categories of outlets on reliability and considers COCO more reliable.

**The null hypothesis is rejected**

*6.7.1.5 t-test for comparison of Value Added Services Dimension between COCO and dealer managed outlet*

**Null Hypothesis**

| | |
|---|---|
| $H_{025}$ | There in no difference among category of outlets on Value Added Service Dimension. |

**Table 6.17 t-test for - Value Added Services**

| | Number of Cases | Mean | Standard Deviation | Standard Error | t - Value |
|---|---|---|---|---|---|
| COCO | 120 | 4.23 | 0.459 | 0.042 | 5.18** |
| | | | | | |
| OTHERs | 366 | 3.98 | 0.455 | 0.024 | |
| | | | | | |

** Significant at 0.01 level

The t-value is 9.50, which is significant. As can been seen that the mean value for COCO is 4.23 compared to dealers owned outlets having value of 3.98. There is a significant difference between the COCO outlets and dealer owned outlet on VAS dimension. This implies that the respondents see a visible difference between these two categories of outlets on the services provided at the Company outlets Vis –a Vis the Dealers outlets.

**The null hypothesis is rejected.**

*6.7.1.6 Interpretation*

| | | |
|---|---|---|
| $H_{02}$ | There in no difference among category of on CRM impacting factors | Rejected |
| $H_{021}$ | There in no difference among category of outlets on Relationship dimension | Rejected |
| $H_{022}$ | There in no difference among category of outlets on Appearance Dimension. | Rejected |
| $H_{023}$ | There in no difference among category of outlets on Regulation dimension. | Rejected |
| $H_{024}$ | There in no difference among category of outlets onTrust dimension. | Rejected |
| $H_{025}$ | There in no difference among category of outlets on Value Added Service Dimension. | Rejected |

It can be seen from the above inference that as perceived by the respondents, COCO outlets are more reliable compared to the other outlets. The difference between the mean scores of the two types of outlets is significant, which led us to conclude that on the reliability, the customers prefer to choose to COCO rather than a dealer managed outlet, if given a choice.

Some the possible reasons could be cited as follows:

1. When measured on various dimensions, the coco outlets are distinctly different from the dealer-managed outlet, for reliability, appearance, regulation, trust and value added services. To understand the difference it was observed that the company mostly manages the coco outlets and at most, of the COCO outlets, company's employees are posted. The employee's performance being monitored directly by the company, delivering value to the customer becomes foremost priority for the employee. This

brings the reliability to the outlet as the equipment is up-to-date and the company at such outlets provides all modern equipment whenever they are introduced. Taking further dimension, Multipoint fuel dispensers were deployed by the company at the key COCO outlets, to bring the latest technology to the forefront and ensuring that the outlets are delivering a consistent quality of product. Since employees are managing the outlets, there is no hesitation in answering the customers queries, and any error in the transaction pertaining to credit cars, smart cards and other value added services are easily resolved by the employee rather than depending on a third party. Same is the case with the up gradation of the product equipment, equipment quality and other amenities at the outlet. The services at various COCO's can be easily compared and customer sees no differentiation in any of the parameters when they travel from COCO to COCO. Almost all COCO outlets are branded outlets for each of the company.

2. The dealer owned outlets suffers from the lack of direct employee supervision. However, with more and more dealer being upgraded in the company's branded outlets, it is expected that the mean difference between these two categories of outlets shall come down significantly in the next few years. In addition, within the dealer's category, customers are able to visibly see which of the retail outlets are personally managed by the dealers and which are managed by the dealer's employee. On interaction with some customers, it was conveyed that their association at some of the dealer's outlets is only because of the fact that the dealers as the regular customers identify them and he personally takes interest in the matter of providing services. Incase the dealer is absent from the outlets and the outlets is managed by the deliveryman and the managers, then such outlets are not patronized by the customers. However, some of the dealer outlets are also successful outlets, because dealers make an effort in solicitation of the customers to his outlets and ensure local promotion of his outlets using credit, quality and other service parameters like car washing, car repairing and other amenities, which customers find attractive and beneficial. As a

result of such activities, it was observed that the within the same market, some of the dealers are able to generate more sales compared to other outlets, however, the major indicators on which customers identifying the outlets are Reliability, Trust, Regulation, Appearance and Value added Services rather than going at the outlets which sells more in Volume., as the sale of the outlets is not known to the customers.

**6.8 Measurement of CRM factors impacting the companies**

Reliability, Appearance, Regulations, Trust and Value added services have been identified as five factors, on which the customers make the decisions for visiting a particular company. To test whether respondents see the significant difference among the three companies.

Analysis of variance is used for analyzing the way in which the mean of a variable is affected by different types and combinations of factors. Analysis of variance gives a single overall test of whether there are differences between groups or treatments. Similarly, Duncan's multiple range test method of multiple comparisons in which the group means are ranked from smallest to largest, and then the number of steps that two means are apart in this ranking is used to compute a range statistic for each comparison. Multiple comparisons tests the significance of pair wise differences between more than two means, often conducted after analysis of variance. Significance tests designed for comparisons between just one pair of means cannot be used for this purpose without violating the assumptions of the tests, because if three comparisons are made between three means, for example, then even if the data were completely random, the probability that one of the comparisons would be significant at $p < 0.05$ by chance alone would be greater than 0.05, because there would be three ways in which this could happen: Mean 1 could be significantly different from Mean 2, Mean 1 from Mean 3, or Mean 2 from Mean 3.

In this case, Three Companies HPC, IOC and BPC were tested using the above test to see if there was any significant difference among the three companies.

| | |
|---|---|
| $H_{03}$ | There is no difference between the companies on CRM impacting Factors. |
| $H_{031}$ | There is no difference between the companies on the Reliability dimension |
| $H_{032}$ | There is no difference between the companies on the Appearance dimension. |
| $H_{033}$ | There is no difference between the companies on the Regulation dimension. |
| $H_{034}$ | There is no difference between the companies on the Trust dimension. |
| $H_{035}$ | There is no difference between the companies on the VAS dimension. |

The means between the various companies were calculated based on the responses given for each company and a one way ANOVA test was then applied to see, if there were any significant difference between the companies. Duncan's mean test was calculated to see the significant difference between the companies.

*6.8.1 Comparison of Indicators among Respondents of three Companies on Relationship Dimension*

**Table 6.18 DUNCAN's Mean Test on Relationship Dimension**

| | C1=HPC ( N=243) | C2=IOC ( N=111) | C3=BPC ( N=132) | C1 vs C2 | C2 Vs C3 | C1 Vs C3 | F Value |
|---|---|---|---|---|---|---|---|
| **Mean** | 4.13 | 3.86 | 4.09 | * | * | - | 14.4375** |
| **SD** | 0.4885 | 0.2994 | 0.4711 | | | | |
| **Std Error** | 0.0313 | 0.0284 | 0.0410 | | | | |

**** Significant at 0.01 level**

The F value signifies that there is a significant difference among the three companies on the relationship dimension.

On comparison among the three companies as seen by the respondents, that there is a significant difference among the company 1 having a mean score of 4.13 with that of Company 2 having a mean score of 3.86 on reliability. Similarly, respondents have perceived that there is a significant difference between Company 3 having mean score of 4.09 and company 2 having a mean score of 3.86. Thought there is a difference between the means scores of company 1 and company 3 statistically, and customers see these two companies as comparable. This means that on reliability dimension, customers are able to see the reliability of company 1, 2 and 3 differently in the NCR market. As interpreted in the questionnaire, the statements indicating the dependability, equipment age, transaction quality, employee's knowledge, information by the company and availability of the services at the outlets are distinctly differentiated by the customers.

**Null Hypothesis: There is no difference among the companies on relationship dimension is rejected**

*6.8.2 Comparison of Indicators among Respondents of three Companies on Apperance Dimension*

**Table 6.19 DUNCAN's Mean Test on Appearance Dimension**

| | C1=HPC ( N=243) | C2=IOC ( N=111) | C3=BPC ( N=132) | C1 vs C2 | C2 Vs C3 | C1 Vs C3 | F Value |
|---|---|---|---|---|---|---|---|
| Mean | 4.11 | 3.78 | 4.05 | * | * | - | 20.3189 |
| SD | 0.4908 | 0.4146 | 0.4537 | | | | |
| Std Error | 0.0315 | 0.0394 | 0.0395 | | | | |

`** Significant at 0.01 level`

The F value signifies that there is a significant difference among the three companies on the relationship dimension.

On comparison among the three companies as seen by the respondents, that there is a significant difference among the company 1 having a mean score of 4.11 with that of Company 2 having a mean score of 3.78 on Appearance. Similarly, respondents have perceived that there is a significant difference between Company 3 having mean score of 4.05 and company 2 having a mean score of 3.78. Thought there is a difference between the means scores of company 1 and company 3 statistically, and customers see that the appearance of company 1 is better than that of company 2. This means that on Appearance dimension, customers are able to see the appearance of company 1, 2 and 3 differently in the NCR market. When customers visit the outlets, the appearance of the outlet is differentiated between them among the companies and they see appearance as a differentiating factor for visiting the outlets.

**Null Hypothesis : There is no difference among the companies on Appearance dimension is rejected**

### *6.8.3 Comparison of Indicators among Respondents of three Companies on Regulation*

**Table 6.20 DUNCAN's Mean Test on Regulation Dimension**

| | C1=HPC ( N=243) | C2=IOC ( N=111) | C3=BPC ( N=132) | C1 vs C2 | C2 Vs C3 | C1 Vs C3 | F Value |
|---|---|---|---|---|---|---|---|
| Mean | 4.24 | 3.81 | 4.08 | * | * | * | 26.1582 |
| SD | 0.5750 | 0.3528 | 0.5392 | | | | |
| Std Error | 0.0369 | 0.0335 | 0.0469 | | | | |

** Significant at 0.01 level

The F value signifies that there is a significant difference among the three companies on the Regulation dimension.

On comparison among the three companies as seen by the respondents, there is a significant difference among the company 1 having a mean score of 4.24 with that of Company 2 having a mean score of 3.81 on Regulation. Similarly, respondents have perceived that there is a significant difference between Company 3 having mean score of 4.08 and company 2 having a mean score of 3.81. There is a significant difference between the means scores of company 1 and company 3, and customers see these two companies as different. This means that on Regulation dimension, customers see that the regulation as propagated by the companies in the NCR market is distinguishable. Also, it means that all the three companies respond differently to customer request; maintain a regulation on entry and exit and on new products for the newer vehicles.

**Null Hypothesis: There is no difference among the companies on regulation dimension is rejected**

*6.8.4 Comparison of Indicators among Respondents of three Companies on Trust*

**Table 6.21 DUNCAN's Mean Test on Trust Dimension**

| | C1=HPC ( N=243) | C2=IOC ( N=111) | C3=BPC ( N=132) | C1 vs C2 | C2 Vs C3 | C1 Vs C3 | F Value |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **Mean** | 4.14 | 3.77 | 3.99 | | | | |
| | | | | * | * | * | 25.1007 |
| **SD** | 0.4772 | 0.3828 | 0.4589 | | | | |
| | | | | | | | |
| **Std Error** | 0.0306 | 0.0363 | 0.0399 | | | | |
| | | | | | | | |

** Significant at 0.01 level

The F value signifies that there is a significant difference among the three companies on the Trust dimension.

On comparison among the three companies as seen by the respondents, there is a significant difference among the company 1 having a mean score of 4.14 with that of Company 2 having a mean score of 3.77 on Trust. Similarly, respondents have perceived that there is a significant difference between Company 3 having mean score of 4.99 and company 2 having a mean score of 3.77. Also, there is a significant difference between the means scores of company 1 and company 3, and customers see these two companies as different. This means that customers trust these companies differently in the NCR market. The factors, which bring trust among the companies, are the dependability of the outlets, their operating hours, and their effort in supplying consistent product quality and the layout of the outlet where they can be treated well by the company.

**Null Hypothesis: There is no difference among the companies on Trust dimension is rejected.**

*6.8.5 Comparison of Indicators among Respondents of three Companies on VAS*

**Table 6.22 DUNCAN's Mean Test on 'Value Added Service' Dimension**

| | C1=HPC ( N=243) | C2=IOC ( N=111) | C3=BPC ( N=132) | C1 vs C2 | C2 Vs C3 | C1 Vs C3 | F Value |
|---|---|---|---|---|---|---|---|
| Mean | 4.15 | 3.78 | 4.05 | * | * | * | 27.0066 |
| SD | 0.4324 | 0.3683 | 0.5195 | | | | |
| Std Error | 0.0277 | 0.0350 | 0.0452 | | | | |

** Significant at 0.01 level

The F value signifies that there is a significant difference among the three companies on the Regulation dimension.

On comparison among the three companies as seen by the respondents, there is a significant difference among the company 1 having a mean score of 4.15 with that of Company 2 having a mean score of 3.78 on the Value added Service dimension. Similarly, respondents have perceived that there is a significant difference between Company 3 having mean score of 4.05 and company 2 having a mean score of 3.78. Also, there is a significant difference between the means scores of company 1 and company 3, and customers see these two companies as different. This means that the value added services, which customers sees in terms of the good services, safe and secured transactions, acceptance of Major credit cards and overall reliability of the company are the critical factors for their taking services form a petroleum company in the NCR region.

**Null Hypothesis: There is no difference among the companies on regulation dimension is rejected.**

*6.8.6: Interpretation*

| | | |
|---|---|---|
| $H_{03}$ | There is no difference between the companies on CRM impacting Factors. | Rejected |
| $H_{031}$ | There is no difference between the companies on the Reliability dimension | Rejected |
| $H_{032}$ | There is no difference between the companies on the Appearance dimension. | Rejected |
| $H_{033}$ | There is no difference between the companies on the Regulation dimension. | Rejected |
| $H_{034}$ | There is no difference between the companies on the Trust dimension. | Rejected |
| $H_{035}$ | There is no difference between the companies on the VAS dimension. | Rejected |

Above analysis clearly indicates that the on the five dimensions of the impacting factors, the customers are able to differentiate among the three companies and therefore, there is an indication for the companies to initiate such processes, that the customers either are able to view the cues which differentiate the company from another in the same markets. This position shall be clearly helpful where the company is a leader in the business market.

Similarly, company which is a laggard in a business market has to provide the services, which should atleast becomes comparable with the other market leaders. Since the petroleum company are conscious of the market potential in a trading area market, these indicators shall be helpful for the companies to enhance their market shares.

### 6.9 Regression Analysis

Regression Analysis with one way ANOVA was done to find out the Co-relation Coefficient and their relationship with the performance.

Null Hypothesis

| | |
|---|---|
| $H_{04}$ | The CRM Impacting factors do not contribute to Performance |
| $H_{05}$ | There is no significant difference among the CRM impacting factors that contributes to performance |

#### *6.9.1 Regression Analysis to find Correlation coefficient of the performance indicators*

**Table 6.23 Relationship (Co-relation Coefficients of Performance with Indicators) ( N=486)**

| Indicators | Performance |
|---|---|
| | |
| Reliability | .3581** |
| Appearance | .2245** |
| Regulation | .2777** |
| Trust | .3447** |
| VAS | .2302** |
| | |

The factors as indicated above are correlated to each other. As can be seen that each of the factor contributes to the performance in the performance of the outlets and the respondent's scores for each of the dimension clearly explains that all the factors are co-related to each other, while determining performance at the retail outlets.

The two factors Reliability and Trust contributes to maximum to the performance in presence of the other factors i.e. Appearance, Regulation and Value added services.

**The Null Hypothesis that CRM impacting factors do not contribute to the performace is rejected.**

While there were five factors which contributed as performance indicators at the outlets, yet it was disputed as to which dimension is more significant contributor to the performance with respect to another. Multiple Regressions was used to find out the significant factors contributing to the performance of the outlets.

**Table 6.24 Determinants of Performance**

| Independent Variable | Dependent Variable: Performance | | |
|---|---|---|---|
| | Beta | Simple r | t –Value |
| | | | |
| **Reliability** | 0.25** | 0.3581 | 5.40 |
| | | | |
| | | | |
| **Trust** | 0.23** | 0.3447 | 4.87 |
| | | | |
| **Multiple R** | 0.41 | | |
| **R Square** | 0.17 | | |
| | | | |

Multiple regression analysis reveals that there are only two factors responsible for the performance as perceived by the respondents. According to the analysis, the beta value clearly signifies that there is a significant contribution of reliability to the performance and same is the case with trust dimension.

They together contribute 17% to the performance.

**The Null Hypothesis that there is no significant difference among the CRM impacting factors that contributes to performance is Rejected.**

*6.9.1: Interpretation*

| | | |
|---|---|---|
| $H_{04}$ | The CRM Impacting factors do not contribute to Performance | Rejected |
| $H_{05}$ | There is no significant difference among the CRM impacting factors that contributes to performance | Rejected |

The hypothesis that the factors donot contribute to the performace is rejected implies that in order to improve business performance, the indicators of customer relationship impacting factors have to be taken into consideration. It may happen that sometimes, one or all of the factors may contribute to the performance and therefore, it is absolutely essential that companies have to identify in their own markets, the contributing factors of relationship impacting sales.

From the data, it emerged that when all the marketing program are exercised at the retail outlets, it may happen that some of the factors may contradict each other and the marketing communications sent to the customers are mis-understood. Therefore, it is essential that while building relationships with the customers, the factors which shall impact more at the retail outlets should be looked at first.

**The Null Hypothesis are listed once again:**

| | | |
|---|---|---|
| **$H_{01}$** | **There is no difference between the Three companies.** | **Rejected** |
| **$H_{02}$** | **There in no difference among category of on CRM impacting factors** | **Rejected** |
| $H_{021}$ | There in no difference among category of outlets on Relationship dimension | Rejected |
| $H_{022}$ | There in no difference among category of outlets on Appearance Dimension. | Rejected |

| | | |
|---|---|---|
| $H_{023}$ | There in no difference among category of outlets on Regulation dimension. | Rejected |
| $H_{024}$ | There in no difference among category of outlets onTrust dimension. | Rejected |
| $H_{025}$ | There in no difference among category of outlets on Value Added Service Dimension. | Rejected |
| **$H_{03}$** | **There is no difference between the companies on CRM impacting Factors.** | **Rejected** |
| $H_{031}$ | There is no difference between the companies on the Reliability dimension | Rejected |
| $H_{032}$ | There is no difference between the companies on the Appearance dimension. | Rejected |
| $H_{033}$ | There is no difference between the companies on the Regulation dimension. | Rejected |
| $H_{034}$ | There is no difference between the companies on the Trust dimension. | Rejected |
| $H_{035}$ | There is no difference between the companies on the VAS dimension. | Rejected |
| **$H_{04}$** | **The CRM Impacting factors do not contribute to Performance** | **Rejected** |
| **$H_{05}$** | **There is no significant difference among the CRM impacting factors that contributes to performance.** | **Rejected** |

**The Null Hypothesis is rejected in the study**

# Chapter Seven: Conclusions and Recommendations

## Chapter Outline

This chapter is divided into three sections. The first section deals with the conclusion drawn as a result of the analysis of the primary and its significance. The second section discussed the results of the research along with conclusion and its relevance to the public sector oil companies. The results of the earlier research on the performance outcome and its context to PSU's companies is also discussed in this section. The section also draws some of the relevance and co-relation with the details of the secondary data. The third and last section proposes the recommendation and suggestion. Finally a model of Impacting factors for Customer relationship for the Public Sector oil Companies has been Proposed.

**7.1 Foundations and Results of Earlier Research**

**7.2 Summary of Findings**

**7.3 Discussion**

**7.4 Effects on Performance**

**7.5 Managerial Implications**

**7.6 Limitations and Further Research**

# Chapter 7: Conclusion and Recommendations

## 7.1 Foundations and Results of Earlier Research

(Reinartz, Krafft, Wayne, 2004) during evaluation of the CRM process, its measurement and impact on performance suggested three hypothesis:

- *Effects on Economic Performance:* That there is a significant and positive association between the degree of a business unit's customer management practices with regard to relationship initiation, maintenance, and termination and the business unit's economic performance.

  **H-1: Higher economic performance is associated with greater implementation of CRM processes at the stage of relationship (a) initiation, (b) maintenance, and (c) termination.**

- *CRM-Compatible Organizational Alignment :* That if companies stress to employees that CRM activities are important, structure their organizations to facilitate these activities, and reward employees for engaging in CRM-related activities, the companies are more likely to stress these activities in their interactions with customers.

  **H-2: The greater the level of CRM-compatible organizational alignment, the stronger is the positive link between economic performance and relationship (a) initiation, (b) maintenance, and (c) termination.**

- *CRM Technology :* Though there were conflicting arguments about the direction of the effect of CRM technology on firm or economic performance. However, because there seems to be more positive moderating effect for CRM technology. Thus:

**H-3: The greater the level of CRM technology, the stronger is the positive link between economic performance and relationship (a) initiation, (b) maintenance, and (c) termination.**

- *Control Variable:* To control for the possibility of variance across different industries, the type of industry was used as a control. This enables to account for mean differences of economic performance across industries.

The results of these hypothesis were :

***Relationship Stages and Economic Performance :*** It was hypothesized that the degree of CRM process implementation is positively associated with economic performance (H1) at the three stages of initiation, maintenance, and termination. From the analysis of the results, it was concluded that for perceptual performance measure, support is strongest for maintenance. For initiation, support is marginal, and it is not significant for termination. In the case of objective performance, all three coefficients are marginally significant. Thus, it seems that the more firms engage in implementing CRM processes, especially at the initiation and maintenance stage, the better they perform.

***Moderating Effects of CRM-Compatible Organizational Alignment :*** As above, it was hypothesized that a CRM-compatible organizational alignment has a positive, moderating effect on the CRM processes-economic performance link at each stage of CRM (H2). For the perceptual performance measure, hypothesis was marginally supported for the initiation stage and fully supported for the termination stage. Hypothesis was not supported at the maintenance stage, but the association at least was in the hypothesized direction (positive). For objective performance, the moderating effect was marginally significant for initiation, but not for the other two stages.

***Moderating Effects of CRM Technology :*** It was hypothesized that CRM technology has a positive, moderating effect on the CRM processes-economic performance link at each stage of the relationship (H3). For perceptual performance, H3 was supported only in the case of termination. Notably, for the initiation stage, the moderating effect was negative. At the maintenance stage, the moderating effect was in the expected positive direction, but it was not significant. In terms of objective measures, all three interaction effects were not significant. The findings that the sophistication of the CRM technology used is not necessarily linked to a company's ability to improve economic performance through CRM processes.

### 7.2 Summary of Findings

The Analysis of the data and some of the hypothesis takan at the beginning of the research are listed once again:

**Table 7.1 Details of Hypotheis**

| | | |
|---|---|---|
| **$H_{01}$** | **There is no difference between the Three companies.** | **Rejected** |
| **$H_{02}$** | **There in no difference among category of on CRM impacting factors** | **Rejected** |
| $H_{021}$ | There in no difference among category of outlets on Relationship dimension | Rejected |
| $H_{022}$ | There in no difference among category of outlets on Appearance Dimension. | Rejected |
| $H_{023}$ | There in no difference among category of outlets on Regulation dimension. | Rejected |
| $H_{024}$ | There in no difference among category of outlets onTrust dimension. | Rejected |
| $H_{025}$ | There in no difference among category of outlets on Value Added Service Dimension. | Rejected |
| **$H_{03}$** | **There is no difference between the companies on CRM impacting Factors.** | **Rejected** |

| | | |
|---|---|---|
| $H_{031}$ | There is no difference between the companies on the Reliability dimension | Rejected |
| $H_{032}$ | There is no difference between the companies on the Appearance dimension. | Rejected |
| $H_{033}$ | There is no difference between the companies on the Regulation dimension. | Rejected |
| $H_{034}$ | There is no difference between the companies on the Trust dimension. | Rejected |
| $H_{035}$ | There is no difference between the companies on the VAS dimension. | Rejected |
| **$H_{04}$** | **The CRM Impacting factors do not contribute to Performance** | **Rejected** |
| **$H_{05}$** | **There is no significant difference among the CRM impacting factors that contributes to performance.** | **Rejected** |

The Main observations can be concluded as follows:

1. The research has clearly identified the factors which were identified by the customers which are perceived to be the starting point of initiating the relationship with the company. Oil companies must regard these factors , while planning the retail outlet sites, look for convenience of the customers to facilitiates the services at the outlets and also the quality of fuels. It was evident from the research that the factors which tends customers to buy from a particular outlet is because of the following factors:

   *Proximity of the outlet :* Customers will visit the outlet only if the location is close to the house. Some of the reasons cited for this cause were that customer prefered buying fuels either during the early day/evening when they were near to their house. This would facilitate the un-necessary waste of fuel as they were concerned about it.

Moreover, many of the customers felt that the they were identified by the dealer, however their recognition with the dealer was a low priority item in their ranking.

*Convenince to the travel plan of the customer:* It the outlet falls into the travel plan of the customers, that is the reason for visiting the outlet. Companies have to promote schemes which were location specific and therefore, would attract the customers to the local area outlets. Moreover, this insight shall help company to ensure that customers are prompted to visit outlets enroute to their travel plan.

*Quantity of fuel:* Customers felt that one of the key criteria to visit any petrol pump was the qualiy of fuel and therefore, one of the critical implications for the company is the availability of the god quality fuel at the stations.

*Ambience of the station :* The key attractions for the customer in the competitive scenario is the visibility of the outlets and how good is the ambience of the station. This ambience includes the equipments, upkeep, maintenance of the allied equipments, staff presence and overall companies image.

*Convenience of payment:* With the change in the economic incomes of the customers, the way customers buy fuels and other services from the petrol stations have also changed. The learning therefore, company can draw from the research is that the options must be available to the customer on paying for the services, or else they feel constrained for visting the outlets.

*Company's image in that market:* Customers evaluate each company, based on their experience and interactions with the company. Also they evaluate the responsiveness of the company in the present competitive market and then make their buying decisions. Therefore, this research entails companies to undertake image building exercise as this would influence their relationship with the company.

- *Availability of Value added services (Servicing, Stores etc):* Other than the process of supplying fuels to the customers, customers see their relationship also based on the availability of other services , which includes non-fuel services, such as ATMs, grocery stores etc.

Table 6.6 in the previous chapter has given the weightage on the ranked factors which Illustrates the point and must be considered by the company during the outlet planning stage.

**2.** The Customers sees that the factors impacting their relationship with the company are depending on the following five factors:

a. Reliability
b. Appearance
c. Regulation
d. Trust
e. Value added Services

***Reliability:***The factor of reliability is reflected in the form of the outlet dependability, which is reflected from the modern equipment, their trusted employees, error free sales transactions, ability to answer to customer enquiries, providing accurate information in the advertisement and avaialibility of the services such as ATMs, convenience stores at the outlet.

***Appearance:*** Appearance is measured by the customers in the form of the buying experience they enjoy at the outlets through ambience, employees courtsies and also the allied services offered by the companies. Customers also desire that the services offered by the companies should be available at the dispensing island as that is the moment ehy interact with the company. Simultaneously they appreciate thouse outlets more , where the facility for parking also exists.

***Regulations:*** Customers understands the regulations in terms of the better quality of fuels offered by the companies and they perceive it to be mandatory. Slo the outlet layout and answering customers querries are perceived to regulated by the companies.

***Trust:*** While refueling customers perceive that the dispensor with a digital display gives more accurate fuel and therefore the outlet is dependable. Operating hours and consisitent delivery of quality fuel is a matter of trust between companies and customers. Also they feel more comforted when the ingress and outgress from the outlet is comfortable and the layout is properly accessible.

***Value Added Services:*** Acceptance of the credit cards and the convenience of payment has been considered as once of the major value added service offered to the customers and customers view to be the safest way of transacting with the company. Acceptance of any credit card by the company was seen as a major advantage of payment as customers preferred to pay using these conveniences. Other than these the promotiuonal and good services in terms of the eatables, long hours and overall reliability was considered useful.

The implications for the oil companies are to increase the value components for these factors at the retail outlet and ensure compliance even at the dealer owned stations.

**3.** Difference between the Companies:

The analysis of the primary data reveals that the customers see a significant difference among the three public sector oil companies on the relationship factors. On the 23 variables, the mean scores for each company is listed below:

**Table 7.2 Mean Scores of the Three Companies of CRM factors**

| Company | N | REL | APP | REG | Trust | VAS | Average |
|---|---|---|---|---|---|---|---|
| 1 | 243.0000 | 4.1255 | 4.1136 | 4.2428 | 4.1383 | 4.1512 | 4.1543 |
| 2 | 111.0000 | 3.8559 | 3.7784 | 3.8108 | 3.7730 | 3.7770 | 3.7990 |
| 3 | 132.0000 | 4.0909 | 4.0545 | 4.0833 | 3.9909 | 4.0455 | 4.0530 |

While the customers see a significant difference among the three companies on all the impacting factors arrived as a result of the factor analysis. It implies that in the NCR region, the customer feels that the company 1 is considered better regulation. It means that whenever new products filling to the enwer generation of fuels comes out in the market, customers will first try to explore the same with company 1. Also company responds to the customer request more promptly compared to the other 2 companies. The effort made by the company on reliability, appearance, trust , regulation and VAS have been recognized well by the customers. Company 1 needs to focus more on the appearance dimension as the outlets are perceived to the lacking this dimesion by the customer visiting company1. There is a need for the company 2 to work on all the five dimesion compared to company 1 and 3. The reasons for visiting the outlets would be based on the ranking parametes which 76% of the customers have voded in favour of the the convenient travel plan. However, given the choice on their route, the customers would switch their prefrecne in favour of another company. Company 3 is marginally lower on all the factor mean scores compared to company 1, and a small effort by the company shall push ahead of company 1 in the NCR region.

While the mean scores for overall company are different,however, looking at the mean scores of the individual retail outlet, it is observed that on all the five dimension, there is a difference among the outlets. Some of the outlets of company 1 are lacking compared to company 3 and also company 2 is ahead of the other companies on individual dimemsion.

The conmclusion therefore has to be seen on individual parameters for each company, and company's can drawn inference about the needs of the customers.

*COCO outlets Vs Other outlets:*

**Table 7.3 t-test for the category of outlets**

| Comparision of COCO Vs Others Outlets | | | | | | | |
|---|---|---|---|---|---|---|---|
| | COCO | | | Others | | | t-Value |
| Type | N=120 | | | N=366 | | | |
| | Mean | SD | Std Error | Mean | SD | Std Error | |
| | | | | | | | |
| Reliability | 4.34 | 0.355 | 0.032 | 3.96 | 0.45 | 0.024 | 9.51** |
| Apperance | 4.21 | 0.402 | 0.037 | 3.96 | 0.49 | 0.026 | 5.61** |
| Regulation | 4.34 | 0.365 | 0.033 | 4.01 | 0.57 | 0.030 | 7.89** |
| Trust | 4.30 | 0.342 | 0.031 | 3.92 | 0.48 | 0.025 | 9.50** |
| VAS | 4.23 | 0.459 | 0.042 | 3.98 | 0.46 | 0.024 | 5.18** |

**** Significant at 0.01 level**

The table clearly indicates that the customers see a significant difference among the two category of outlets. While the COCO is a direct representation of the company in the market, it is felt that the removal of intermediatory has impacted their relationship with the company, as the company officers are more responsive and cautious in execution of services and products. The significant difference is seen in the Reliability and Trust. While the COCO outlets have installed more confidence in the minds of the customers, the company's efforts to bring the 'other' outlets to the level of coco outlets is still farfetched. The companies therefore have to work on the aspect of bringing these 'other' outlets to the company outlets. However, when it comes to regulations, customers have observed that there is not much difference in the product quality. The other factors such as quality, quantity, services etc are perceived differently by the customers. The observation is uniform for all the three companies and therefore learning can be drawn from these hypothesis.

*7.2.23 Impact of Relationship on Performance:* Comparison of Indicators among Respondents of three Companies on various dimension clearly indicates, that the customers are able to diffrenctaite the companies based on the factors of relationship. It was observed that the customers do not see significant diffrence in sales of the outlets and measures the company's performance based on the value they get from the company, rather than looking at the sales , which each outlets is doing.

**Table 7.4 Duncans Means Test for Three Companies**

| Comparision of Indicators among Respondents of three categories: DUNCAN's Mean Test | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Indicators | C1=HPC ( N=243) | | | C2=IOC ( N=111) | | | C3=BPC ( N=132) | | | C1 vs C2 | C2 Vs C3 | C1 Vs C3 | F Value |
| | Mean | SD | Std Error | Mean | SD | Std Error | Mean | SD | Std Error | | | | |
| Reliability | 4.13 | 0.4885 | 0.0313 | 3.86 | 0.2994 | 0.0284 | 4.09 | 0.4711 | 0.0410 | * | * | - | 14.4375 |
| Appearnace | 4.11 | 0.4908 | 0.0315 | 3.78 | 0.4146 | 0.0394 | 4.05 | 0.4537 | 0.0395 | * | * | - | 20.3189 |
| Regulation | 4.24 | 0.5750 | 0.0369 | 3.81 | 0.3528 | 0.0335 | 4.08 | 0.5392 | 0.0469 | * | * | * | 26.1582 |
| Trust | 4.14 | 0.4772 | 0.0306 | 3.77 | 0.3828 | 0.0363 | 3.99 | 0.4589 | 0.0399 | * | * | * | 25.1007 |
| VAS | 4.15 | 0.4324 | 0.0277 | 3.78 | 0.3683 | 0.0350 | 4.05 | 0.5195 | 0.0452 | * | * | * | 27.0066 |

** Significant at 0.01 level

From the co-relation cofficents as listed in table 6.23 and 6.24, the two important variable of performance are reliability and trust and they are the major indicators of performance for the company. The company therefore, have to work on these two dimemsion specifically to ensure that the calue of thesw two co-officeints is maximized and customers are able to see them different from one-another.

### 7.3 Discussion

Reinartz, Krafft, Hoyer ( 2004) Studied the Customer Relationship Management Process: Its Measurement and Impact on Performance and identified the goals of their study to: (1) to conceptualize and operationalize the process of CRM implementation, ( 2) to determine whether the implementation of CRM processes is positively linked to performance, and ( 3) to identify some key moderators of the relationship. They found that the data provided support for conceptualization for the CRM construct in terms of three primary dimensions: relationship initiation, maintenance, and termination. Second, their findings indicate that the implementation of CRM processes is associated with better company performance in two of the three stages. The strongest effect is for relationship maintenance, followed by relationship initiation. The effects for relationship termination were either low or not significant (even in the negative direction for perceptual performance). Thus, CRM appears to produce some of the payoff that companies expect when they invest in CRM activities. If a proper organizational structure and incentives are not in place, it may be difficult for CRM processes to produce the desired effects. Thus, it is not enough for a company simply to implement CRM processes. It must organize itself and install a reward structure to support these processes. This also suggests that organization variables need to play a key role in further research efforts that attempt to understand the performance impact of CRM. Also, it was found from the data that a large proportion of CRM technology deployments do not perform to expectations.

They formalized that the CRM process can be formalized in terms of three primary dimensions: relationship initiation, maintenance, and termination so that results of CRM processes can be compared across companies and research studies. This index can also be employed as a guide for further research. On the other hand, their conceptualization highlights the importance of separating the three dimensions of CRM processes, because performance may vary at each stage. Mere examination of CRM processes at a general level does not capture the detailed nature of relationship management. A key goal of further research could be to examine factors that influence performance at each stage in more detail.

The results of their studies indicated that the CRM process-performance link is not as strong as expected. This suggests that there is considerable room for improvement in the implementation of CRM processes. In particular, findings strongly suggest that mere implementation of CRM technology will not lead to the desired effect; it may even have a negative effect. Therefore, managers need to evaluate the contributions of technology differently at the three stages of CRM processes. Also the data show that the alignment of organizational aspects is a critical element in the CRM implementation effort.

Keeping the above discussion in mind the framework developed by us in the current research was based on the five dimension, The CRM processs of the Public Sector oil companies were clearly flowing a common goal of Relaibility, Appearance, Regulation, Trust and Value added services. The similarity therefore in our research and as proposed by earlier work on performance are collaborating. It was also observed that the performance of the company were varying at every state of these CRM process and on a overall scale doe not guide a general rule of relationship management. In order to have some linkage with the performace of the retail outlet and in turn with the company, it is necessary to build the relationships on these variables.

Earlier work proposed that the implementation of CRM processes is associated with better company performance in two of the three stages. The strongest effect is for relationship maintenance, followed by relationship initiation. The effects for relationship termination were either low or not significant (even in the negative direction for perceptual performance). Thus, CRM appears to produce some of the payoff that companies expect when they invest in CRM activities. However, some types of activities may increase performance and others may not. Our hypothesis suggest the similar view as all of the CRM dimensions do not contribute to performance . However, when seen in relationship to each other, it was seen that the all factors contribute to performance, but significantly, only Reliability and Trust contributes to the performance. Therefore, it is possible that companies are giving importance to the other factors as strongly. Specifically, in terms of the regulations, the drive for newer fuels may be triggered by the automotive companies and for cleaner fuels by the enviornmentalist. The other two dimensions such are appearance and value added services have matured and now companies are required to initiate newer models of relationships on these dimensions.

The earlier studies indicated that if a proper organizational structure and incentives are not in place, it may be difficult for CRM processes to produce the desired effects. Thus, it is not enough for a company simply to implement CRM processes. It must organize itself and install a reward structure to support these processes. This also suggests that organization variables need to play a key role in further research efforts that attempt to understand the performance impact of CRM. The performance indicators also auggest that the the two variables reliability and trust only contribute 17% to the performance and therefore, organizational efforts must be placed in order to identify and then understand the impact of other variables.

Earlier research suggest that role of technology is crucial to CRM implementations. However, moderating CRM technology effects were not significant and the effect has to observed over a period of time and no clear comments could be offered by the studies. Nevertheless, the results emphasized that the successful implementation of CRM requires a strong people-related component. Our research findings also suggest that the there is a significant influence of the people on the performance and companies are required to put greater emphasis on the people in order to see the desired result of CRM implementations.

## 7.4 Effects on Performance

Reinartz, Krafft, Hoyer ( 2004) mentioned that, if companies are able to understand more effectively the value of the customer to the company, they will perform better on these three primary dimensions. Companies will then be better able to manage individual customer relationships and to determine more effectively the contribution of these relationships to the profitability of the unit and/or the company. The current research also substantiate the findings of the earlier work and our results that the companies must understand the reasons of interactions of the customers with the company,as the interactions of the individual customer and its economic performane shall determine the performance of the company . A high degree of CRM process implementation means that companies are able to adjust their interactions according to the life-cycle stages of their customers and that they may be able to influence the stages actively (e.g., by maturing or extending relationships; Zeithaml, Rust, and Lemon 2001). In doing so, the factors responsible for such interactions have to studied in details by the company. Therefore, we expect a significant and positive association between the degree of a business unit's customer management practices with regard to relationship factors and the business unit's economic performance

customers with the revenues or profits derived from the same customers (Mulhern 1999). Firms will spend a disproportionate amount of resources on highly profitable customers or ones that are worth the resource allocation because they are "high potentials." Furthermore, firms will economize on unprofitable or marginally profitable customers, who then either may leave the relationship or may build up their relationship with the focal firm.

## 7.5 Managerial Implications

The results of this research have several important implications for managers. The research provides a systematic outline of the different CRM activities that occur at retail outlets of oil companies and the various components of the relationships can be used by the managers to enhance the customer interactions. Thus, a company could use the approach to identify key activities that must be implemented to be successful, and an evaluation of the activities can provide a means for comparing their level of implementation with that of competitors .

One of the key issues in front of the organizations is to create value for their customer through the marketing process. (Ambler 2000; Blattberg, Getz, and Thomas ,2001; Keller and Lehmann ,2001; Rust,Zeithaml, and Lemon,2000). Though the core purpose of the Enhancement of the services by the Company is to deliver value to the customers, yet, various market-oriented programs should do everything in their power to enhance brand equity of the company and must take it to a level of customer equity. The introduction of various brands such as Club-HP, Servo-Preium, Speed etc which are brand equity of the company, needs to be taken to the level of customer equity. The company' offering on these brand basket is to translate the benefits at the customer level and customers must see the value offering on these brands in order to complete the process of their relationship with the compnies..

Since the CRM process-performance link was not identified to be strong in the earlier study, the work of Reinartz, Krafft, Hoyer ( 2004) suggests that there is considerable room for improvement in the implementation of CRM processes. Our study also indicate that the same. Managers also need to pay greater attention to other aspects of CRM process implementation The current research points direction on the similar lines and leaves a scope for further studies. The retail outlets of the oil companies provided a perfect platfarm of the customer –employee interactions and customer-oriented behaviors for successful CRM engagements, employee reward should be key component of the CRM activities.

### 7.6 Limitations and Further Research

Although, this research provided some meaningful findings which are relevant in the context of the PSU oil companies, there are some limitations that need to be discussed. First, a key objective of our study was to conceptualize and operationalize a measure of CRM impacting factors on the performance on business. Though, an extensive search through academic literature was done to identify the critical impacting factors, but each industry has to be looked from their individual business orientation. Identification process of these factors provides only a framework of looking at the process of CRM.

Second, the business of the oil is very dynamic and it should be noted that the companies are also operating in a dynamic environment. The current research is to be seen as an attempt to see the current realities and the customers perceptions as the balancesheet of the efforts made by the companies. The factors identified provides only a glimpse of the relationship factors which company can look forward for controlling in the future times to come. There is a strong possibility of many exogenous variable which might be affecting the performance of the companies, as the companies are operating under a controlled mechnism and only dynamic factors have been accounted in the study. Therefore, there is further scope of research left in the study to examine the CRM variables and their impact.

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# Appendix

## THE QUESTIONNAIRE

**Retail Outlet Name & Company:** ____________________

**OUTLET TYPE: COCO: 1 PVT OWNER: 2**

**Dear Customer,**

I am conducting a research on "Customer satisfaction level at Petrol Pumps (Retail outlets)/ this is a part of my academic research and the information provided by you will be used for academic purpose only. I would appreciate your responses to the following questions.

Please answer all questions. If you are unsure, please answer to the best of your ability. Please tick the box whenever applicable. Please write in Capital letters

| Sl NO | Question | Your Options |
|---|---|---|
| **G1** | Do you own a vehicle? | 1: Yes 2: No |
| **G2** | What type of vehicle do you have? | 1: Two wheeler 2: LMV |
| **G3** | Average visit made by you to the petrol Pump per month | 1 : (0-2) 2: (3-4) 3: more than 4 |
| **G4** | How many (kms) do you drive daily? | 1: (0-50 kms) 2: (> 50 kms) |
| **G5** | Please indicate the average Quantity Purchased by you /week | 1: (0-5) 2:(5-10) 3:(11-20) 4: (21-30) 5 : (>30) |
| **G6** | Please indicate the average Value ( Rs.) purchase by you/week | 1: (0-100) 2: (100-500) 3: (500-750) 4: (750-1000-) 5: (>1000) |
| **G7** | Do you drive it yourself | 1: Yes 2: No |
| **G8** | Normally you buy your fuel from | 1: HPC 2: IOC 3: BPC |
| **G9** | Your preferred outlet | 1: Branded Petrol Pump 2: Dealer owned |
| **G10** | Do you Acknowledge the up- gradation efforts of the PSU oil companies to serve their customers | 1: Yes 2: No |
| **G11** | Does it install more confidence in your buying compared to few earlier years? | 1: Yes 2: No |
| **G12** | How satisfied are you compared to the earlier years | 1: Not at all satisfied 2: Not so satisfied 3: neither satisfied nor dissatisfied 4 Somewhat Satisfied 5 Very Satisfied |
| **G13** | Can you please tell me which petrol pump is your most regularly visited for refueling? **RECORD THE COMPANY NAME & LOCATION** | |
| **G14** | Can you please tell me why is this petrol pump your most regularly visited? **RECORD VERBATIM** | |

1. Rank the following factors which affect your buying decision in purchasing petrol/diesel from the Petrol Pump. 1 being the highest preference and 7 being the lowest

| | Factors | Rank |
|---|---|---|
| 1 | Convenient location of the outlet as per my travel plan | |
| 2 | Availability of Quality fuel/ branded fuels | |
| 3 | Quantity of fuel I want to purchase | |
| 4 | Ambience of the station | |
| 5 | Availability of Multiple modes of payment like (credit, debit or cash) | |
| 6 | Brand/ company name | |
| 7 | Availability of Value added services ( Servicing, Stores etc) | |

2. Can you please tell me on a scale 1-5 to what extent are each of these statements important to you to select a fuel retail outlet?
**RECORD APPROPRIATELY IN THE GRID BELOW**

| Not at all important | **Some what not important** | **Some what important** | **Important** | **Critical, without which i will not purchase fuel from an outlet** |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

3. How would you rate the satisfaction level of the following service parameters provided by the company?

| | **Statements** | **Level of Importance** | | | | |
|---|---|---|---|---|---|---|
| **1** | Employees of this outlet are dependable | 1 | 2 | 3 | 4 | 5 |
| **2** | Outlet which has modern equipment | 1 | 2 | 3 | 4 | 5 |
| **3** | Error free sales transactions and records | 1 | 2 | 3 | 4 | 5 |
| **4** | Ability of the employees to answer customer questions / knowledge of the employees | 1 | 2 | 3 | 4 | 5 |
| **5** | Accurate information in the advertisements | 1 | 2 | 3 | 4 | 5 |
| **6** | Availability of value added services (Eg: convenience stores, ATM etc) | 1 | 2 | 3 | 4 | 5 |

4. Are you satisfied with the information provided by the company on the following parameters?

| | | | | | | |
|---|---|---|---|---|---|---|
| **7** | Outlet with a digital refueling dispenser | 1 | 2 | 3 | 4 | 5 |
| **8** | Up to date Air check & puncher fitting equipment | 1 | 2 | 3 | 4 | 5 |
| **9** | Improvement of Ambience of an outlet | 1 | 2 | 3 | 4 | 5 |
| **10** | Employees are consistently courteous with customers | 1 | 2 | 3 | 4 | 5 |
| **11** | convenient parking for customers at the outlet | 1 | 2 | 3 | 4 | 5 |
| **12** | All services should be delivered at the dispensing unit | 1 | 2 | 3 | 4 | 5 |

5. Are you satisfied with the level of service provided by the company at the outlet on the following parameters?

| | | | | | | |
|---|---|---|---|---|---|---|
| **13** | Prompt response to customer request | 1 | 2 | 3 | 4 | 5 |
| **14** | Company which produces products which fit newer vehicles | 1 | 2 | 3 | 4 | 5 |
| **15** | Smooth entry & exist | 1 | 2 | 3 | 4 | 5 |

6. How would you rate the following attributes with respect to the quality of service provided by the company?

| | | | | | | |
|---|---|---|---|---|---|---|
| **16** | Dependable outlet | 1 | 2 | 3 | 4 | 5 |
| **17** | Convenient operating hours | 1 | 2 | 3 | 4 | 5 |
| **18** | Consistent Improvement in product quality | 1 | 2 | 3 | 4 | 5 |
| **19** | Proper layout of the Fuel outlet which helps in easy accessibility of various services | 1 | 2 | 3 | 4 | 5 |

7. How would you rate the following attributes with respect to the quality of service provided by the company?

| | | | | | | |
|---|---|---|---|---|---|---|
| **20** | Good service offered | 1 | 2 | 3 | 4 | 5 |
| **21** | Safe transactions | 1 | 2 | 3 | 4 | 5 |
| **22** | Major credit cards accepted as mode of payment | 1 | 2 | 3 | 4 | 5 |
| **23** | Reliability of the company | 1 | 2 | 3 | 4 | 5 |

8. How this outlet is different from others companies outlet? ( Record Verbatim)

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9. **We would also like to know you:**

| | | |
|---|---|---|
| **B1** | Name of Customer(Optional): | |
| **B2** | Address of Customer(Optional | |
| **B3** | Telephone / Mobile No.(Optional | |
| **B4** | E-mail(Optional) | |
| **B5** | Sex | 1: Male 2:Fenmale |
| **B6** | Your Age: | 1:18-25; 2:26-35 : 3:36-45; 4:45-55 , 5: >55 |
| **B7** | Your Education | : <10 Std 2: <10+2 3: Graduate 4: >Post Graduate |
| **B8** | Marital Status | 1 : Married 2: Single |
| **B9** | Profession | 1: Salaried 2: Business 3: Self Employed |
| **B10** | Your Industry | 1: Manufacturing 2: Service Industry 3: Banking/Finance 4: IT 5: Others |
| **B11** | Annual Income | 1:(0-1 Lakh) 2:(1-2.5 Lakh) 3: 2.5-5.0 Lakhs 4 : 5-10 Lakhs 5: >10 Lakhs |

**Thank you for your patience**

**A Sample of the questionnaire which was developed for collection of the data from the respondents.**

**The Questionnaire**

**Retail Outlet Name:** ______________________________
**Address:** ______________________________
:
______________________________

**Dear Customer,**

I am conducting a research on "Customer satisfaction level at Petrol Pumps (Retail outlets)/ This is a part of my academic research and the information provided by you will be used for academic purpose only. I would appreciate your responses to the following questions.

Please answer all questions. If you are unsure, please answer to the best of your ability. Please tick the box whenever applicable. Please write in Capital letters

| | | |
|---|---|---|
| 1 | Do you own a vehicle? | Yes-1 ☐ No-2 ☐ |
| 2 | What type of vehicle do you have? | Two wheeler-1 ☐ LMV-2 ☐ HMV-3 ☐ |
| 3 | Average visit made by you to the petrol Pump | (0-2) -1 ☐ (3-4) -2 ☐ |
| 4 | How many (kms) do you drive daily? | (0-50 kms) -1 ☐ (> 50 kms) -2 ☐ |
| 5 | Please indicate the average Quantity Purchased by you | (0-5)-1 ☐ (5-10)-2 ☐ (11-20)-3 ☐ (21-30)-4 ☐ (>30)-5 ☐ |
| 6 | Please indicate the average Value ( Rs.) purchase by you. | (0-100)-1 ☐ (100-500)-2 ☐ (500-750)-3 ☐ (750-1000-) ☐ (>1000)-5 ☐ |
| 7 | Do you drive it yourself | Yes-1 ☐ No-2 ☐ |
| 8 | Normally you buy your fuel from | IOC-1 ☐ HPC -2 ☐ BPC-3 ☐ IBP-4 ☐ Others-5 ☐ |
| 9 | Your preferred outlet | Branded Station-1 ☐ Dealer owned -2 ☐ Any other-3 ☐ |
| 10 | Do you Acknowledge the up-gradation efforts of the PSU oil companies to serve their customers | Yes-1 ☐ No-2 ☐ |
| 11 | Does it install more confidence in your buying compared to few earlier years. | Yes-1 ☐ No-2 ☐ |

| 12 | How satisfied are you compared to the earlier years | Yes-1 ☐ No-2 ☐ |
|---|---|---|

2. Rank the following factors which affect your buying decision in taking petrol/diesel from the Petrol Pump.

| Factors | Rank |
|---|---|
| Proximity to your house | |
| Convenience to your travel plan | |
| Availability of Quality fuel/branded fuels | |
| Quantity of fuel | |
| Ambience of the station | |
| Mileage/liter you get from a particular petrol pump. | |
| Promptness of the dealer to serve you | |
| Your identification with the Dealer | |
| Your vehicle upkeep on value addition | |
| Convenience of payment | |
| Staff Quality and accessibility | |
| Equipment Quality at the petrol pump. | |
| Company's image in that market. | |
| Availability of Value added services ( Servicing, Stores etc) | |

# Measurement of CRM Attributes

The following Set of Questions pertains to the expected levels of the service/Quality which in your opinions should be available at the outlet.

Please indicate the extent to which you agree with the following statements. Do this by encircling one of the five numbers next to each statement according to the following scale.

**1=I don't know 2=Highly Dissatisfied 3=Dissatisfied 4=Satisfied 5=Highly Satisfied**

| | Expected | |
|---|---|---|
| E1 | This outlet should have upto date equipments | 1-☐ 2-☐ 3-☐ 4-☐ 5-☐ |
| E2 | The retail outlet's physical facilities should be visually appealing | 1-☐ 2-☐ 3-☐ 4-☐ 5-☐ |
| E3 | This outlet's employees are well dressed and appear neat. | 1-☐ 2-☐ 3-☐ 4-☐ 5-☐ |
| E4 | The appearance of the physical facilities of this outlet is in keeping with the type of services provided. | 1-☐ 2-☐ 3-☐ 4-☐ 5-☐ |
| E5 | This outlet is dependable | 1-☐ 2-☐ 3-☐ 4-☐ 5-☐ |

| | | |
|---|---|---|
| E6 | This outlet keeps its records accurately. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E7 | Employees of this outlet are too busy to respond to customer request promptly. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E8 | You can trust the employees of this outlet | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E9 | You feel safe in your transactions with this outlet employees. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E10 | Employees of this outlet are polite. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E11 | Employees get adequate support from this outlet to do their jobs well. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E12 | This outlet does not give you individual attention | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E13 | Employees of this outlet does not give you personal attention | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E14 | Employees of this outlet do not know what you needs are | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E15 | This outlet does not have operating hours convenient to all their customers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E16 | The government should test competing brands of products and make the result of these test available. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E17 | The governement should set minimum standards of quality for all products sold to consumers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E18 | The government should exercise more responsibility for regulating the advertising sales and marketing activities of the manufacturers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E19 | A federal department of consumer protection is not needed to protect and promote the interest of consumers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E20 | I general , company make an effort to produce fuels to fit the needs of the consumers new vehicles | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E21 | Over the past several years, the quality of most products has not improved. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E22 | From the consumers point of view, style changes at the outlet are not as important as improvements in product quality | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E23 | The wide variety of competing products makes intelligent buying decisions more difficult. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E24 | For most types of the products, the diffrences among competing brands are insignificant and unimportant to consumers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |

| | | |
|---|---|---|
| E25 | This Retail outlet has modern looking equipment and fixtures | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E26 | The Physical facilities at this Retail outlet are visually appealing | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E27 | This Retail outlet has clean, attractive and convenient public areas ( restrooms, fitting rooms) | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E28 | The layout at this Retail outlet makes it easy for customers to find way what they need. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E29 | The layout of this retail outlet makes it easy for customers to move around in the store. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E30 | This Retail outlet performs the service right the first time. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E31 | This Retail outlet insists on error free sales transactions and records | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E32 | The outlet has a good selection of merchandise -bad selection of merchandise | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E33 | This outlet has a good reputation-bad reputation | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E34 | Overall,I have a good impression-bad impression about this outlet | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E35 | This outlet is high class-low class | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E36 | The outlet is doing well-in trouble | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E37 | This outlet layout is good-bad | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E38 | This outlet has a good appearance-bad appearance. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E39 | The outlet is in good physical condition-bad physical condition | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E40 | The outlet offers good service-bad service | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E41 | The outlet's sales person made a good impression-bad impression | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E42 | I understand the features well enough to evaluate the brands of various companies | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E43 | I have a preference for one or more brands in this product class | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E44 | I usually purchase the same brand within its product class | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E45 | Most of the brands in this product class are all alike | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |

| | | |
|---|---|---|
| E46 | In selecting from many types and brands of this product available in the market, would you say that: I would not care at all as to which one I buy | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E47 | Do you think that the various types and brands of this product available in the market are all very alike or are all very different-they are alike | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E48 | How important would it be to you to make a right choice of this product- No at all important | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E49 | In making your selection of this product , how concerned would you be about the outcome of your choice-not at all concerned | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E50 | Employees in this Retail outlet have the knowledge to answer customers questions | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E51 | The behavior of employees at this outlet instill confidence in customers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E52 | Customers feel safe in their transactions with this outlet | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E53 | Employees at this Retail outlet give prompt service to its customers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E54 | This outlet gives customer individual attention | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E55 | Employees at this retail outlet are consistently courtioues with customers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E56 | The outlet offers high quality merchandise | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E57 | The Outlet provides plenty of convenient parking for customers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E58 | This outlet has operating hours convenient to all customers | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E59 | This outlet accepts most major credit cards | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E60 | Delivery should be rapid | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E61 | I don't think of any differences between the major brands of fuel | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E62 | To me there are big differences between the various brands of fuels | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E63 | The only difference between the major brands of fuels is Quality | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E64 | Fuels and branded fuels; most brands are basically the same. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |

| | | |
|---|---|---|
| E65 | All Major brand of fuels are the same. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E66 | I enjoy sampling different brands of commonplace products for the sake of comparision | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E67 | I would rather stick with a brand I usally buy than try something I am not sure of. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E68 | If I like a brand, I rarely switch from it just to try something different. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E69 | I get bored with buying the same brands even if they are good. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E70 | A lot of time, I feel urge to to buy something really different from the brands I usually buy. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E71 | I enjoy exploring several different alternatives of brands while shopping. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E72 | The company where I get my vehicle refuelled is generally commited to my satisfaction. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E73 | The company will do whatever it takes to make me happy. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E74 | When I see a company's advertisement, I believe the information in it is accurate. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E75 | Most of what this company says about its fuels is true | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E76 | I think some of the company's claims about its fuels are puffed up to make them seem better than they really are. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E77 | If this company makes a claim or promise about its products , its probably true. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E78 | My company is very reliable. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| E79 | I feel I know what to expect from my company | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| | | |

The following Set of Questions pertains to the Perceived levels of the service/Quality which in your opinions should be available at the outlet.

Please indicate the extent to which you agree with the following statements. Do this by encircling one of the five numbers next to each statement according to the following scale.

**1=I don't know 2=Highly Dissatisfied 3=Dissatisfied 4=Satisfied 5=Highly Satisfied**

| | **Perception** | |
|---|---|---|
| P1 | This outlet has upto date equipments | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P2 | The retail outlet's physical facilities are visually appealing | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P3 | This outlet's employees are well dressed and appear neat. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P4 | The appearance of the physical facilities of this outlet is in keeping with the type of services provided. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P5 | This outlet is dependable | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P6 | This outlet keeps its records accurately. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P7 | Employees of this outlet are too busy to respond to customer request promptly. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P8 | You can trust the employees of this outlet | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P9 | You feel safe in your transactions with this outlet employees. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P10 | Employees of this outlet are polite. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P11 | Employees get adequate support from this outlet to do their jobs well. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P12 | This outlet does not give you individual attention | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P13 | Employees of this outlet does not give you personal attention | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P14 | Employees of this outlet do not know what you needs are | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P15 | This outlet does not have operating hours convenient to all their customers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P16 | The government should test competing brands of products and make the result of these test available. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |

| | | |
|---|---|---|
| P17 | The governement should set minimum standards of quality for all products sold to consumers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P18 | The government should exercise more responsibility for regulating the advertising sales and marketing activities of the manufacturers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P19 | A federal department of consumer protection is not needed to protect and promote the interest of consumers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P20 | I general , company make an effort to produce fuels to fit the needs of the consumers new vehicles | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P21 | Over the past several years, the quality of most products has not improved. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P22 | From the consumers point of view, style changes at the outlet are not as important as improvements in product quality | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P23 | The wide variety of competing products makes intelligent buying decisions more difficult. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P24 | For most types of the products, the diffrences among competing brands are insignificant and unimportant to consumers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P25 | This Retail outlet has modern looking equipment and fixtures | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P26 | The Physical facilities at this Retail outlet are visually appealing | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P27 | This Retail outlet has clean, attractive and convenient public areas ( restrooms, fitting rooms) | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P28 | The layout at this Retail outlet makes it easy for customers to find way what they need. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P29 | The layout of this retail outlet makes it easy for customers to move around in the store. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P30 | This Retail outlet performs the service right the first time. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P31 | This Retail outlet insists on error free sales transactions and records | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P32 | The outlet has a good selection of merchandise -bad selection of merchandise | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P33 | This outlet has a good reputation-bad reputation | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P34 | Overall,I have a good impression-bad impression about this outlet | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P35 | This outlet is high class-low class | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |

| | | |
|---|---|---|
| P36 | The outlet is doing well-in trouble | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P37 | This outlet layout is good-bad | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P38 | This outlet has a good appearance-bad appearance. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P39 | The outlet is in good physical condition-bad physical condition | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P40 | The outlet offers good service-bad service | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P41 | The outlet's sales person made a good impression-bad impression | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P42 | I understand the features well enough to evaluate the brands of various companies | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P43 | I have a preference for one or more brands in this product class | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P44 | I usually purchase the same brand within its product class | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P45 | Most of the brands in this product class are all alike | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P46 | In selecting from many types and brands of this product available in the market, would you say that: I would not care at all as to which one I buy | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P47 | Do you think that the various types and brands of this product available in the market are all very alike or are all very different-they are alike | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P48 | How important would it be to you to make a right choice of this product- No at all important | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P49 | In making your selection of this product , how concerned would you be about the outcome of your choice-not at all concerned | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P50 | Employees in this Retail outlet have the knowledge to answer customers questions | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P51 | The behavior of employees at this outlet instill confidence in customers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P52 | Customers feel safe in their transactions with this outlet | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P53 | Employees at this Retail outlet give prompt service to its customers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P54 | This outlet gives customer individual attention | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P55 | Employees at this retail outlet are consistently courtioues with customers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |

| | | |
|---|---|---|
| P56 | The outlet offers high quality merchandise | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P57 | The Outlet provides plenty of convenient parking for customers. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P58 | This outlet has operating hours convenient to all customers | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P59 | This outlet accepts most major credit cards | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P60 | Delivery should be rapid | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P61 | I don't think of any diffrences between the major brands of fuel | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P62 | To me there are big diffrences between the various brands of fuels | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P63 | The only difference between the major brands of fuels is Quality | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P64 | Fuels and branded fuels; most brands are basically the same. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P65 | All Major brand of fuels are the same. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P66 | I enjoy sampling different brands of commonplace products for the sake of comparision | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P67 | I would rather stick with a brand I usally buy than try something I am not sure of. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P68 | If I like a brand, I rarely switch from it just to try something different. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P69 | I get bored with buying the same brands even if they are good. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P70 | A lot of time, I feel urge to to buy something really different from the brands I usually buy. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P71 | I enjoy exploring several different alternatives of brands while shopping. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P72 | The company where I get my vehicle refuelled is generally commited to my satisfaction. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P73 | The company will do whatever it takes to make me happy. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P74 | When I see a company's advertisement, I believe the information in it is accurate. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P75 | Most of what this company says about its fuels is true | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |

| | | |
|---|---|---|
| P76 | I think some of the company's claims about its fuels are puffed up to make them seem better than they really are. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P77 | If ths company makes a claim or promise about its products , its probably ture. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P78 | My company is very reliable. | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |
| P79 | I feel I know what to expect from my company | 1-☐ 2-☐ 3-☐ 4- ☐ 5-☐ |

We would also like to know you:

1.Name of Customer : ____________________

2. Address of Customer ____________________

____________________

3 Telephone / Mobile No. ☐☐ ☐☐☐☐☐☐☐☐☐

4 E-mail ____________________

5 Sex Male-1 ☐ Female -2 ☐

6. City Name :--------------------------------------------------------------------

7. Your Age:. ☐☐

8. Your Profession:

| Salaried | Business | Self Employed |
|---|---|---|
| | | |

9. Annual Income (0-100)-1☐ (100-500)-2☐ (500-750)-3☐ (750-1000-)☐ (>1000)-5 ☐

PS: Any other question can be added by you.

# Thank you for your patience.

## Frequency Table For the Sample

### VEHOWN

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1.00 | 486 | 100.0 | 100.0 | 100.0 |

### VEHTYP

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1.00 | 191 | 39.3 | 39.3 | 39.3 |
| | 2.00 | 295 | 60.7 | 60.7 | 100.0 |
| | Total | 486 | 100.0 | 100.0 | |

### AVGVIS

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1.00 | 289 | 59.5 | 59.5 | 59.5 |
| | 2.00 | 197 | 40.5 | 40.5 | 100.0 |
| | Total | 486 | 100.0 | 100.0 | |

### DAILKM

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1.00 | 289 | 59.5 | 59.5 | 59.5 |
| | 2.00 | 197 | 40.5 | 40.5 | 100.0 |
| | Total | 486 | 100.0 | 100.0 | |

**WEEKQTY**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1.00 | 191 | 39.3 | 39.3 | 39.3 |
| | 2.00 | 153 | 31.5 | 31.5 | 70.8 |
| | 4.00 | 142 | 29.2 | 29.2 | 100.0 |
| | Total | 486 | 100.0 | 100.0 | |

**WEEKPUR**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1.00 | 48 | 9.9 | 9.9 | 9.9 |
| | 2.00 | 244 | 50.2 | 50.2 | 60.1 |
| | 3.00 | 100 | 20.6 | 20.6 | 80.7 |
| | 4.00 | 94 | 19.3 | 19.3 | 100.0 |
| | Total | 486 | 100.0 | 100.0 | |

**DRITYPE**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1.00 | 296 | 60.9 | 60.9 | 60.9 |
| | 2.00 | 190 | 39.1 | 39.1 | 100.0 |
| | Total | 486 | 100.0 | 100.0 | |

## Frequency Table for the Respondents

### GENDER

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1.00 | 472 | 97.1 | 97.1 | 97.1 |
| | 2.00 | 14 | 2.9 | 2.9 | 100.0 |
| | Total | 486 | 100.0 | 100.0 | |

### AGE

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1.00 | 70 | 14.4 | 14.4 | 14.4 |
| | 2.00 | 142 | 29.2 | 29.2 | 43.6 |
| | 3.00 | 206 | 42.4 | 42.4 | 86.0 |
| | 4.00 | 40 | 8.2 | 8.2 | 94.2 |
| | 5.00 | 28 | 5.8 | 5.8 | 100.0 |
| | Total | 486 | 100.0 | 100.0 | |

### EDUC

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1.00 | 3 | .6 | .6 | .6 |
| | 2.00 | 158 | 32.5 | 32.7 | 33.3 |
| | 3.00 | 243 | 50.0 | 50.3 | 83.6 |
| | 4.00 | 79 | 16.3 | 16.4 | 100.0 |
| | Total | 483 | 99.4 | 100.0 | |
| Missing | System | 3 | .6 | | |
| Total | | 486 | 100.0 | | |

**MARITAL**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1.00 | 303 | 62.3 | 62.5 | 62.5 |
| | 2.00 | 182 | 37.4 | 37.5 | 100.0 |
| | Total | 485 | 99.8 | 100.0 | |
| Missing | System | 1 | .2 | | |
| Total | | 486 | 100.0 | | |

**PROFESS**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1.00 | 315 | 64.8 | 65.1 | 65.1 |
| | 2.00 | 78 | 16.0 | 16.1 | 81.2 |
| | 3.00 | 91 | 18.7 | 18.8 | 100.0 |
| | Total | 484 | 99.6 | 100.0 | |
| Missing | System | 2 | .4 | | |
| Total | | 486 | 100.0 | | |

**INDUST**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1.00 | 138 | 28.4 | 28.8 | 28.8 |
| | 2.00 | 131 | 27.0 | 27.3 | 56.2 |
| | 3.00 | 95 | 19.5 | 19.8 | 76.0 |
| | 4.00 | 12 | 2.5 | 2.5 | 78.5 |
| | 5.00 | 103 | 21.2 | 21.5 | 100.0 |
| | Total | 479 | 98.6 | 100.0 | |
| Missing | System | 7 | 1.4 | | |
| Total | | 486 | 100.0 | | |

**INCOME**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1.00 | 89 | 18.3 | 18.3 | 18.3 |
| | 2.00 | 89 | 18.3 | 18.3 | 36.6 |
| | 3.00 | 107 | 22.0 | 22.0 | 58.6 |
| | 4.00 | 173 | 35.6 | 35.6 | 94.2 |
| | 5.00 | 28 | 5.8 | 5.8 | 100.0 |
| | Total | 486 | 100.0 | 100.0 | |

## t-Test Analysis for the sample

| | Number of Cases | Mean | Standard Deviation | Standard Error | t - Value |
|---|---|---|---|---|---|
| COCO | 120 | 4.34 | 0.355 | 0.032 | 9.51** |
| | | | | | |
| OTHERs | 366 | 3.96 | 0.451 | 0.024 | |
| | | | | | |

| | Number of Cases | Mean | Standard Deviation | Standard Error | t - Value |
|---|---|---|---|---|---|
| COCO | 120 | 4.21 | 0.402 | 0.037 | 5.61** |
| | | | | | |
| OTHERs | 366 | 3.96 | 0.491 | 0.026 | |
| | | | | | |

| | Number of Cases | Mean | Standard Deviation | Standard Error | t - Value |
|---|---|---|---|---|---|
| COCO | 120 | 4.34 | 0.365 | 0.033 | 7.89** |
| | | | | | |
| OTHERs | 366 | 4.01 | 0.571 | 0.030 | |
| | | | | | |

| | Number of Cases | Mean | Standard Deviation | Standard Error | t - Value |
|---|---|---|---|---|---|
| COCO | 120 | 4.30 | 0.342 | 0.031 | 9.50** |
| | | | | | |
| OTHERs | 366 | 3.92 | 0.475 | 0.025 | |
| | | | | | |

| | Number of Cases | Mean | Standard Deviation | Standard Error | t - Value |
|---|---|---|---|---|---|
| COCO | 120 | 4.23 | 0.459 | 0.042 | 5.18** |
| | | | | | |
| OTHERs | 366 | 3.98 | 0.455 | 0.024 | |
| | | | | | |

## t-test for: RELA

| | Number of Cases | Mean | Standard Deviation | Standard Error |
|---|---|---|---|---|
| Group 1 | 108 | 4.3287 | .369 | .036 |
| Group 2 | 360 | 3.9556 | .464 | .024 |

| F Value | 2-Tail Prob. | Pooled Variance Estimate: t Value | Degrees of Freedom | 2-Tail Prob. | Separate Variance Estimate: t Value | Degrees of Freedom | 2-Tail Prob. |
|---|---|---|---|---|---|---|---|
| 1.58 | .005 | 7.65 | 466 | .000 | 8.65 | 218.12 | .000 |

## t-test for: APP

| | Number of Cases | Mean | Standard Deviation | Standard Error |
|---|---|---|---|---|
| Group 1 | 120 | 4.2100 | .402 | .037 |
| Group 2 | 366 | 3.9590 | .491 | .026 |

| F Value | 2-Tail Prob. | Pooled Variance Estimate: t Value | Degrees of Freedom | 2-Tail Prob. | Separate Variance Estimate: t Value | Degrees of Freedom | 2-Tail Prob. |
|---|---|---|---|---|---|---|---|
| 1.50 | .010 | 5.07 | 484 | .000 | 5.61 | 245.17 | .000 |

## t-test for: REG

| | Number Of Cases | Mean | Standard Deviation | Standard Error |
|---|---|---|---|---|
| Group 1 | 120 | 4.3667 | .365 | .033 |
| Group 2 | 366 | 3.8934 | .803 | .042 |

| F Value | 2-Tail Prob. | Pooled Variance Estimate: t Value | Degrees of Freedom | 2-Tail Prob. | Separate Variance Estimate: t Value | Degrees of Freedom | 2-Tail Prob. |
|---|---|---|---|---|---|---|---|
| 4.84 | .000 | 6.24 | 484 | .000 | 8.83 | 437.29 | .000 |

t-test for: TRUST

| | Number of Cases | Mean | Standard Deviation | Standard Error |
|---|---|---|---|---|
| Group 1 | 120 | 4.2800 | .359 | .033 |
| Group 2 | 366 | 3.9066 | .491 | .026 |

| | | Pooled Variance Estimate | | | Separate Variance Estimate | | |
|---|---|---|---|---|---|---|---|
| F Value | 2-Tail Prob. | t Value | Degrees of Freedom | 2-Tail Prob. | t Value | Degrees of Freedom | 2-Tail Prob. |
| 1.88 | .000 | 7.68 | 484 | .000 | 8.97 | 276.36 | .000 |

t-test for: VAS

| | Number of Cases | Mean | Standard Deviation | Standard Error |
|---|---|---|---|---|
| Group 1 | 120 | 4.1688 | .551 | .050 |
| Group 2 | 366 | 3.9590 | .471 | .025 |

| | | Pooled Variance Estimate | | | Separate Variance Estimate | | |
|---|---|---|---|---|---|---|---|
| F Value | 2-Tail Prob. | t Value | Degrees of Freedom | 2-Tail Prob. | t Value | Degrees of Freedom | 2-Tail Prob. |
| 1.37 | .030 | 4.05 | 484 | .000 | 3.74 | 179.59 | .000 |

| Correlations: | TYPE | RELA | APP | REG | TRUST | VAS |
|---|---|---|---|---|---|---|
| TYPE | 1.0000 | .3581 | .2245 | .2777 | .3447 | .2302 |
| | ( 486) | ( 486) | ( 486) | ( 486) | ( 486) | ( 486) |
| | P= . | P= .000 | P= .000 | P= .000 | P= .000 | P= .000 |
| RELA | .3581 | 1.0000 | .5665 | .4400 | .4626 | .4531 |
| | ( 486) | ( 486) | ( 486) | ( 486) | ( 486) | ( 486) |
| | P= .000 | P= . | P= .000 | P= .000 | P= .000 | P= .000 |
| APP | .2245 | .5665 | 1.0000 | .3735 | .3867 | .4992 |
| | ( 486) | ( 486) | ( 486) | ( 486) | ( 486) | ( 486) |
| | P= .000 | P= .000 | P= . | P= .000 | P= .000 | P= .000 |
| REG | .2777 | .4400 | .3735 | 1.0000 | .5821 | .4029 |
| | ( 486) | ( 486) | ( 486) | ( 486) | ( 486) | ( 486) |
| | P= .000 | P= .000 | P= .000 | P= . | P= .000 | P= .000 |
| TRUST | .3447 | .4626 | .3867 | .5821 | 1.0000 | .4016 |
| | ( 486) | ( 486) | ( 486) | ( 486) | ( 486) | ( 486) |
| | P= .000 | P= .000 | P= .000 | P= .000 | P= . | P= .000 |
| VAS | .2302 | .4531 | .4992 | .4029 | .4016 | 1.0000 |
| | ( 486) | ( 486) | ( 486) | ( 486) | ( 486) | ( 486) |
| | P= .000 | P= .000 | P= .000 | P= .000 | P= .000 | P= . |

| | Number of Cases | Mean | Standard Deviation | Standard Error |
|---|---|---|---|---|
| Group 1 | 108 | 4.3287 | .369 | .036 |
| Group 2 | 360 | 3.9556 | .464 | .024 |

| F Value | 2-Tail Prob. | Pooled Variance Estimate: t Value | Pooled Variance Estimate: Degrees of Freedom | Pooled Variance Estimate: 2-Tail Prob. | Separate Variance Estimate: t Value | Separate Variance Estimate: Degrees of Freedom | Separate Variance Estimate: 2-Tail Prob. |
|---|---|---|---|---|---|---|---|
| 1.58 | .005 | 7.65 | 466 | .000 | 8.65 | 218.12 | .000 |

- - - - - - - - - - - O N E W A Y - - - - - - - - - - -

Variable RELA
By Variable COMP

Analysis of Variance

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | F Prob. |
|---|---|---|---|---|---|
| Between Groups | 2 | 5.7804 | 2.8902 | 14.4375 | .0000 |
| Within Groups | 483 | 96.6913 | .2002 | | |
| Total | 485 | 102.4717 | | | |

| Group | Count | Mean | Standard Deviation | Standard Error | 95 Pct Conf Int for Mean | | |
|---|---|---|---|---|---|---|---|
| Grp 1 | 243 | 4.1255 | .4885 | .0313 | 4.0638 | To | 4.1872 |
| Grp 2 | 111 | 3.8559 | .2994 | .0284 | 3.7995 | To | 3.9122 |
| Grp 3 | 132 | 4.0909 | .4711 | .0410 | 4.0098 | To | 4.1720 |
| Total | 486 | 4.0545 | .4597 | .0209 | 4.0136 | To | 4.0955 |
| | Fixed Effects Model | | .4474 | .0203 | 4.0146 | To | 4.0944 |
| | Random Effects Model | | | .0841 | 3.6925 | To | 4.4166 |

Random Effects Model - Estimate of Between Component Variance .0177

| Group | Minimum | Maximum |
|---|---|---|
| Grp 1 | 2.5000 | 4.8333 |
| Grp 2 | 3.1667 | 4.6667 |
| Grp 3 | 2.6667 | 4.8333 |
| Total | 2.5000 | 4.8333 |

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .4337, P = .002 (Approx.)
Bartlett-Box F = 16.114 , P = .000
Maximum Variance / Minimum Variance 2.662

- - - - - - - - - - - O N E W A Y - - - - - - - - - - -

```
      Variable  RELA
   By Variable  COMP

Multiple Range Test

Duncan Procedure
Ranges for the  .050 level -

          2.78   2.93

The ranges above are table ranges.
The value actually compared with Mean(J)-Mean(I) is..
         .3164 * Range * Sqrt(1/N(I) + 1/N(J))

(*) Denotes pairs of groups significantly different at the  .050 level

                           G G G
                           r r r
                           p p p

     Mean       Group      2 3 1

     3.8559     Grp 2
     4.0909     Grp 3      *
     4.1255     Grp 1      *
```

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\- - - - - - - - - - O N E W A Y - - - - - - - - - -

Variable APP
By Variable COMP

Analysis of Variance

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | F Prob. |
|---|---|---|---|---|---|
| Between Groups | 2 | 8.7654 | 4.3827 | 20.3189 | .0000 |
| Within Groups | 483 | 104.1806 | .2157 | | |
| Total | 485 | 112.9459 | | | |

| Group | Count | Mean | Standard Deviation | Standard Error | 95 Pct Conf Int for Mean | | |
|---|---|---|---|---|---|---|---|
| Grp 1 | 243 | 4.1136 | .4908 | .0315 | 4.0516 | To | 4.1756 |
| Grp 2 | 111 | 3.7784 | .4146 | .0394 | 3.7004 | To | 3.8564 |
| Grp 3 | 132 | 4.0545 | .4537 | .0395 | 3.9764 | To | 4.1327 |
| Total | 486 | 4.0210 | .4826 | .0219 | 3.9780 | To | 4.0640 |
| | Fixed Effects Model | | .4644 | .0211 | 3.9796 | To | 4.0624 |
| | Random Effects Model | | | .1038 | 3.5744 | To | 4.4676 |

Random Effects Model - Estimate of Between Component Variance .0275

| Group | Minimum | Maximum |
|---|---|---|
| Grp 1 | 2.6000 | 4.8000 |
| Grp 2 | 2.2000 | 4.6000 |
| Grp 3 | 3.2000 | 5.0000 |
| Total | 2.2000 | 5.0000 |

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .3894, P = .103 (Approx.)
Bartlett-Box F = 2.148 , P = .117
Maximum Variance / Minimum Variance 1.402

```
-------------------------------------------------------------------------------

               - - - - - - - - - - O N E W A Y - - - - - - - - - -

      Variable  APP
   By Variable  COMP


Multiple Range Test


Duncan Procedure
Ranges for the  .050 level -

          2.78   2.93

The ranges above are table ranges.
The value actually compared with Mean(J)-Mean(I) is..
         .3284 * Range * Sqrt(1/N(I) + 1/N(J))


(*) Denotes pairs of groups significantly different at the  .050 level


                          G G G
                          r r r
                          p p p

     Mean       Group     2 3 1

     3.7784     Grp 2
     4.0545     Grp 3     *
     4.1136     Grp 1     *
```

- - - - - - - - - - - O N E W A Y - - - - - - - - - - -

Variable REG
By Variable COMP

Analysis of Variance

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | F Prob. |
|---|---|---|---|---|---|
| Between Groups | 2 | 14.2744 | 7.1372 | 26.1582 | .0000 |
| Within Groups | 483 | 131.7853 | .2728 | | |
| Total | 485 | 146.0597 | | | |

| Group | Count | Mean | Standard Deviation | Standard Error | 95 Pct Conf Int for Mean | | |
|---|---|---|---|---|---|---|---|
| Grp 1 | 243 | 4.2428 | .5750 | .0369 | 4.1701 | To | 4.3155 |
| Grp 2 | 111 | 3.8108 | .3528 | .0335 | 3.7444 | To | 3.8772 |
| Grp 3 | 132 | 4.0833 | .5392 | .0469 | 3.9905 | To | 4.1762 |
| Total | 486 | 4.1008 | .5488 | .0249 | 4.0519 | To | 4.1497 |
| Fixed Effects Model | | | .5223 | .0237 | 4.0543 | To | 4.1474 |
| Random Effects Model | | | | .1326 | 3.5304 | To | 4.6713 |

Random Effects Model - Estimate of Between Component Variance .0453

| Group | Minimum | Maximum |
|---|---|---|
| Grp 1 | 2.3333 | 5.0000 |
| Grp 2 | 3.0000 | 4.6667 |
| Grp 3 | 3.0000 | 5.0000 |
| Total | 2.3333 | 5.0000 |

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .4433, P = .001 (Approx.)
Bartlett-Box F = 15.720 , P = .000
Maximum Variance / Minimum Variance 2.656

```
-----------------------------------------------------------------------------

              - - - - - - - - - - - O N E W A Y - - - - - - - - - - -

      Variable  REG
   By Variable  COMP


Multiple Range Test


Duncan Procedure
Ranges for the  .050 level -

          2.78   2.93

The ranges above are table ranges.
The value actually compared with Mean(J)-Mean(I) is..
         .3694 * Range * Sqrt(1/N(I) + 1/N(J))


(*) Denotes pairs of groups significantly different at the  .050 level


                            G G G
                            r r r
                            p p p

     Mean       Group       2 3 1

     3.8108     Grp 2
     4.0833     Grp 3       *
     4.2428     Grp 1       * *
```

- - - - - - - - - - O N E W A Y - - - - - - - - - -

Variable TRUST
By Variable COMP

Analysis of Variance

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | F Prob. |
|---|---|---|---|---|---|
| Between Groups | 2 | 10.2712 | 5.1356 | 25.1007 | .0000 |
| Within Groups | 483 | 98.8221 | .2046 | | |
| Total | 485 | 109.0933 | | | |

| Group | Count | Mean | Standard Deviation | Standard Error | 95 Pct Conf Int for Mean | | |
|---|---|---|---|---|---|---|---|
| Grp 1 | 243 | 4.1383 | .4772 | .0306 | 4.0780 | To | 4.1986 |
| Grp 2 | 111 | 3.7730 | .3828 | .0363 | 3.7010 | To | 3.8450 |
| Grp 3 | 132 | 3.9909 | .4589 | .0399 | 3.9119 | To | 4.0699 |
| Total | 486 | 4.0148 | .4743 | .0215 | 3.9725 | To | 4.0571 |
| Fixed Effects Model | | | .4523 | .0205 | 3.9745 | To | 4.0551 |
| Random Effects Model | | | | .1124 | 3.5310 | To | 4.4987 |

Random Effects Model - Estimate of Between Component Variance .0325

| Group | Minimum | Maximum |
|---|---|---|
| Grp 1 | 2.6000 | 5.0000 |
| Grp 2 | 2.6000 | 4.8000 |
| Grp 3 | 2.8000 | 4.8000 |
| Total | 2.6000 | 5.0000 |

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .3894, P = .104 (Approx.)
Bartlett-Box F = 3.487 , P = .031
Maximum Variance / Minimum Variance 1.554

```
--------------------------------------------------------------------------------

                - - - - - - - - - - O N E W A Y - - - - - - - - - -

      Variable  TRUST
   By Variable  COMP

Multiple Range Test

Duncan Procedure
Ranges for the  .050 level -

          2.78   2.93

The ranges above are table ranges.
The value actually compared with Mean(J)-Mean(I) is..
         .3198 * Range * Sqrt(1/N(I) + 1/N(J))

(*) Denotes pairs of groups significantly different at the  .050 level

                           G G G
                           r r r
                           p p p

     Mean      Group       2 3 1

     3.7730    Grp 2
     3.9909    Grp 3       *
     4.1383    Grp 1       * *
```

- - - - - - - - - - - O N E W A Y - - - - - - - - - - -

Variable VAS
By Variable COMP

Analysis of Variance

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | F Prob. |
|---|---|---|---|---|---|
| Between Groups | 2 | 10.6825 | 5.3413 | 27.0066 | .0000 |
| Within Groups | 483 | 95.5258 | .1978 | | |
| Total | 485 | 106.2083 | | | |

| Group | Count | Mean | Standard Deviation | Standard Error | 95 Pct Conf Int for Mean | | |
|---|---|---|---|---|---|---|---|
| Grp 1 | 243 | 4.1512 | .4324 | .0277 | 4.0966 | To | 4.2059 |
| Grp 2 | 111 | 3.7770 | .3683 | .0350 | 3.7078 | To | 3.8463 |
| Grp 3 | 132 | 4.0455 | .5195 | .0452 | 3.9560 | To | 4.1349 |
| Total | 486 | 4.0370 | .4680 | .0212 | 3.9953 | To | 4.0787 |
| | Fixed Effects Model | | .4447 | .0202 | 3.9974 | To | 4.0767 |
| | Random Effects Model | | | .1147 | 3.5435 | To | 4.5306 |

Random Effects Model - Estimate of Between Component Variance .0339

| Group | Minimum | Maximum |
|---|---|---|
| Grp 1 | 2.5000 | 5.0000 |
| Grp 2 | 3.0000 | 4.5000 |
| Grp 3 | 2.2500 | 5.0000 |
| Total | 2.2500 | 5.0000 |

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .4555, P = .000 (Approx.)
Bartlett-Box F = 7.147 , P = .001
Maximum Variance / Minimum Variance 1.990

---

- - - - - - - - - - O N E W A Y - - - - - - - - - -

Variable VAS
By Variable COMP

Multiple Range Test

Duncan Procedure
Ranges for the .050 level -

2.78 2.93

The ranges above are table ranges.
The value actually compared with Mean(J)-Mean(I) is..
.3145 * Range * Sqrt(1/N(I) + 1/N(J))

(*) Denotes pairs of groups significantly different at the .050 level

| Mean | Group | Grp 2 | Grp 3 | Grp 1 |
|---|---|---|---|---|
| 3.7770 | Grp 2 | | | |
| 4.0455 | Grp 3 | * | | |
| 4.1512 | Grp 1 | * | * | |

```
This procedure was completed at 21:40:43
REGRESSION VARIABLES= TYPE RELA TO VAS/
DEPENDENT = TYPE/
METHOD=STEPWISE.
```

* * * * M U L T I P L E   R E G R E S S I O N * * * *

Listwise Deletion of Missing Data

Equation Number 1    Dependent Variable..   TYPE

Beginning Block Number  1.  Method:  Stepwise

Variable(s) Entered on Step Number
1..    RELA

| | |
|---|---|
| Multiple R | .35806 |
| R Square | .12821 |
| Adjusted R Square | .12641 |
| Standard Error | .40346 |

Analysis of Variance

| | DF | Sum of Squares | Mean Square |
|---|---|---|---|
| Regression | 1 | 11.58632 | 11.58632 |
| Residual | 484 | 78.78405 | .16278 |

F =     71.17914       Signif F =  .0000

------------------ Variables in the Equation ------------------

| Variable | B | SE B | Beta | T | Sig T |
|---|---|---|---|---|---|
| RELA | .33626 | .03986 | .35806 | 8.437 | .0000 |
| (Constant) | -1.11645 | .16263 | | -6.865 | .0000 |

------------- Variables not in the Equation -------------

| Variable | Beta In | Partial | Min Toler | T | Sig T |
|---|---|---|---|---|---|
| APP | .03190 | .02816 | .67909 | .619 | .5362 |
| REG | .14896 | .14327 | .80641 | 3.181 | .0016 |
| TRUST | .22777 | .21628 | .78603 | 4.868 | .0000 |
| VAS | .08556 | .08169 | .79470 | 1.801 | .0723 |

```
* * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *

Variable(s) Entered on Step Number
   2..    TRUST

Multiple R           .41108
R Square             .16899
Adjusted R Square    .16555
Standard Error       .39431

Analysis of Variance
                    DF      Sum of Squares      Mean Square
Regression           2            15.27158          7.63579
Residual           483            75.09879           .15548

F =      49.10979       Signif F =  .0000

------------------ Variables in the Equation ------------------

Variable              B          SE B        Beta          T  Sig T

RELA            .23731        .04394      .25270      5.401  .0000
TRUST           .20731        .04258      .22777      4.868  .0000
(Constant)    -1.54758        .18195                 -8.506  .0000
--------------------------------------------------------------------------------
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* * * *   M U L T I P L E   R E G R E S S I O N   * * * *

Equation Number 1    Dependent Variable..   TYPE

------------- Variables not in the Equation -------------

Variable     Beta In  Partial  Min Toler         T  Sig T

APP          -.01022  -.00910     .60938     -.200  .8417
REG           .05433   .04708     .60834     1.035  .3013
VAS           .03243   .03076     .70083      .676  .4996

End Block Number   1   PIN =     .050 Limits reached.
```

**Rotated Component Matrix[a]**

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| P1 | .557 | | | | |
| P2 | .707 | | | | |
| P3 | .731 | | | | |
| P4 | .556 | | | | |
| P5 | .441 | | | | |
| P6 | .500 | | | | |
| P8 | | .540 | | | |
| P9 | | .461 | | | |
| P10 | | .642 | | | |
| P11 | | .570 | | | |
| P12 | | .648 | | | |
| P14 | | | | .787 | |
| P15 | | | | .786 | |
| P16 | | | | .659 | |
| P7 | | | .525 | | |
| P17 | | | .738 | | |
| P18 | | | .475 | | |
| P19 | | | .665 | | |
| P20 | | | .506 | | |
| P21 | | | | | .672 |
| P22 | .430 | | | | .469 |
| P23 | | | | | .544 |
| P24 | | .420 | | | .555 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 14 iterations.

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 5.678 | 24.689 | 24.689 | 5.678 | 24.689 | 24.689 | 2.961 | 12.872 | 12.872 |
| 2 | 1.931 | 8.397 | 33.086 | 1.931 | 8.397 | 33.086 | 2.688 | 11.687 | 24.560 |
| 3 | 1.504 | 6.541 | 39.627 | 1.504 | 6.541 | 39.627 | 2.323 | 10.098 | 34.658 |
| 4 | 1.447 | 6.289 | 45.916 | 1.447 | 6.289 | 45.916 | 2.199 | 9.561 | 44.219 |
| 5 | 1.305 | 5.676 | 51.592 | 1.305 | 5.676 | 51.592 | 1.696 | 7.373 | 51.592 |
| 6 | 1.177 | 5.119 | 56.711 | | | | | | |
| 7 | 1.045 | 4.545 | 61.256 | | | | | | |
| 8 | .983 | 4.275 | 65.531 | | | | | | |
| 9 | .872 | 3.789 | 69.320 | | | | | | |
| 10 | .811 | 3.528 | 72.848 | | | | | | |
| 11 | .740 | 3.220 | 76.068 | | | | | | |
| 12 | .696 | 3.024 | 79.092 | | | | | | |
| 13 | .645 | 2.805 | 81.897 | | | | | | |
| 14 | .592 | 2.574 | 84.471 | | | | | | |
| 15 | .536 | 2.329 | 86.800 | | | | | | |
| 16 | .521 | 2.266 | 89.066 | | | | | | |
| 17 | .471 | 2.046 | 91.112 | | | | | | |
| 18 | .442 | 1.921 | 93.033 | | | | | | |
| 19 | .425 | 1.846 | 94.879 | | | | | | |
| 20 | .362 | 1.575 | 96.454 | | | | | | |
| 21 | .324 | 1.407 | 97.861 | | | | | | |
| 22 | .275 | 1.196 | 99.057 | | | | | | |
| 23 | .217 | .943 | 100.000 | | | | | | |

Extraction Method: Principal Component Analysis.

**Component Score Covariance Matrix**

| Component | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 2 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| 3 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 |
| 4 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 |
| 5 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.